

# MINUTES

263

PUBLIC MEETING OF THE BOARD OF EDUCATION  
SAN DIEGO UNIFIED SCHOOL DISTRICT  
AUDITORIUM, EDUCATION CENTER  
4100 NORMAL STREET  
SAN DIEGO, CALIFORNIA

November 3, 1977

4:30 P.M.

## AGENDA ITEM

## ACTION AUTHORIZED BY BOARD

ATTENDANCE AT THIS SPECIAL PUBLIC MEETING (Board Members who arrive after meeting begins will be noted as "Present" at point in this agenda at which they arrive.

A copy of the Notice and Call of Special Meeting is made a part of these minutes.

### A. REPORT OF THE SUPERINTENDENT

1. Progress report on ESEA, Title IV, Project Telemath.
2. Report on projected impact of Assembly Bill 65 on District programs.

See EXHIBIT A which is made a part of these minutes.

See EXHIBIT A which is made a part of these minutes.

### B. ADJOURNMENT

Adjourn at 5:30 p.m.

Respectfully submitted,

*Thomas L. Goodman*

THOMAS L. GOODMAN  
Superintendent of Schools  
and Secretary of Board

APPROVED:

*George W. Smith*

GEORGE W. SMITH  
President of Board

LEGALITY AND FORM  
APPROVED:

*Ralph D. Stern*  
RALPH D. STERN  
Schools Attorney

1977-1978 Series No. 35

Billa N. Clarkson  
Recording Secretary



BOARD OF EDUCATION  
SAN DIEGO CITY SCHOOLS

November 1, 1977

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JOHN WITT  
Vice President

DOROTHEA EDMISTON

JULIE FISHER

DR. PHILIP HALFAKER

THOMAS L. GOODMAN  
Superintendent of Schools  
and Secretary of Board

RALPH D. STERN  
Schools Attorney and  
Asst. Secretary of Board

NOTICE AND CALL OF SPECIAL MEETING

TO: The above members of the Board of Education of the San Diego Unified School District, and to those San Diego radio stations, television stations, and newspapers of general circulation which have requested in writing notice of special meetings of said Board.

Pursuant to Section 35144, Education Code, and the State of California's RALPH M. BROWN ACT, Section 54956, Government Code, a special meeting of the Board of Education of the San Diego Unified School District is hereby noticed and called for 4:30 p.m., Thursday, November 3, 1977, in the Education Center auditorium, 4100 Normal Street, San Diego, California.

AGENDA FOR SPECIAL MEETING

1. Report on projected impact of Assembly Bill 65 on District programs.
2. Progress report on ESEA, Title IV, Project Telemath.

GEORGE W. SMITH  
President  
Board of Education

GWS:bnc

LEGALITY AND FORM APPROVED:

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San Diego Unified School District  
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202

SAN DIEGO UNIFIED SCHOOL DISTRICT  
Programs Division

Report to the Superintendent  
November 3, 1977

TELEMATH

INTRODUCTION

TELEMATH represents a cooperative endeavor between a local electronics manufacturer, Gremlin Industries, and the San Diego Unified School District to develop and test a computer-based instructional system which will be within the budget capabilities of most schools. This report covers the first year of operation for project TELEMATH which is fully funded by an ESEA Title IV-C grant. The major goal of the project is to evaluate the effectiveness of a computerized video-graphic system for improving basic mathematics skills. The equipment consists of a self-contained, compact micro-computer which delivers district-written mathematics curriculum via a standard television set. The computerized video-graphic system is designed for small group instruction to improve basic mathematics skills. Highly motivational activities have been written by San Diego Unified School District teachers to reinforce each of the district's computational objectives from grade 3 through grade 6. By the end of the third year of the project, activities will have been written to reinforce each of the district's basic mathematics skills objectives from grade K through grade 8.

PARTICIPANTS

Approximately 500 fourth and fifth grade students from eight elementary schools (six public and two non-public) participated in the first year of the project. The schools included Encanto, Francis Parker, Freese, Green, Linda Vista, Marvin, St. Michaels, and Scripps Elementary. Students, who took part in Telemath as project participants or as comparison students, were randomly assigned from within standard classes in the project schools. Students received their regular mathematics instruction less the two half-hour periods per week when they were pulled out in groups of two to four to use the Telemath equipment. In this way both project and comparison students were to experience the same amount of instructional time on mathematics. The regular classroom teacher diagnosed each of the students. The deficiencies of the project students were communicated to the students and the teacher assistant working with the Telemath System.

STRATEGY

Activities were programmed into the computerized video-graphic system based on the diagnosed needs of the students. These drill and practice activities appear on the television screen and students solve the problems either in their heads or using pencil and paper. They then enter their responses into the computer by operating hand-held, controlled keyboards. A personalizing link between the equipment and students has been accommodated by referring to individual students by name on the screen throughout each activity. Immediate feedback to individual student responses also enhances the personalization. Telemath is intended to be an enjoyable experience.

Report to the Superintendent  
Telemath  
Page 2  
November 3, 1977

It is important to point out that students are not pulled out of class merely for fun and games. While most of the Telemath activities are highly motivational, each is designed to meet a specific basic mathematics objective as listed in the district guides for instruction in mathematics.

#### EVALUATION

Results from the first year's evaluation report show a clear advantage in favor of Telemath students over comparison students, for example:

1. On criterion-referenced survey tests administered to Telemath and comparison students, the difference in mean scores at both grades 4 and 5 favor the Telemath students.
2. On standardized norm-referenced tests, the combined data for all schools indicate a statistically significant advantage in favor of the Telemath group.

The consistency of results plus the levels of statistical significance for both standardized norm-referenced tests and district achievement tests indicate that Telemath represents an effective approach to providing personalized instruction to students. The random assignment of students to Telemath and comparison groups within classes, supports the contention that the differences are a result of the Telemath project and not simply teacher effect. A detailed evaluation report is attached. A quick inspection of the preface of the evaluation report will expedite its review.

#### SUMMARY

After only one year of pilot study, it appears that Telemath holds the promise of a truly motivational tool that has shown potential value and worth in learning centers and mathematics labs. It is hoped that in the next two years we can continue to show the benefits of Telemath as the project is expanded to include students from grades 3 through grade 8.

DDH:hc

Enc.



END OF BUDGET PERIOD REPORT  
ESEA TITLE IV PART C PROJECT

JULY 1976 — JUNE 1977

**PROJECT TELEMATH**

Submitted By  
San Diego City Schools  
4100 Normal  
San Diego, California  
June 1977

# PREFACE

This document was presented to the State Department of Education in early July, 1977 as an End of Project Year Evaluation Report covering the first year of operation of Project TELEMATH. It is *not* intended to be a total evaluation report, per se. Due to the omission of program descriptive pages, it may be difficult for the reader to gain a complete picture of the implementation of the program during the 1976-77 school year. Hopefully, in the near future a more descriptive summary report will be developed which would be appropriate for dissemination to a broader and less technically-oriented audience.

To facilitate the review of the evaluation data contained in this report, the following clusters of pages are suggested for perusal. They have been ordered to provide *an increasing degree of detail*.

- |   |   |
|---|---|
| o Pages v and vi ( <i>in pink</i> )<br>Abstract of Program and<br>Evaluation Abstract | Intended to give a general<br>overview  |
| o Pages 1 and 48 - 52<br>Objectives, Findings/Conclusions<br>and Recommendations      | Intended to provide a<br>brief, but detailed, review<br>of findings by objective.<br>A list of 7 recommendations<br>are provided.                                 |
| o Pages 1 through 52 ( <i>in yellow</i> )<br>Evaluation Narrative Analysis            | Intended to be a detailed<br>narrative including Objec-<br>tives, Evaluation Procedures,<br>Data Analysis, Results,<br>Finding/Conclusions and<br>Recommendations |
| o Appendices  | Intended to provide<br>supplemental information   |
| o California State Department of<br>Education Report Forms ( <i>in green</i> )        | Report forms required by<br>State Department  |

*Grant Behnke*

Grant Behnke  
Program Evaluator  
San Diego City Schools

GB:jf  
June 1977

## TABLE OF CONTENTS

	Page
PREFACE . . . . .	<i>i</i>
TABLE OF CONTENTS . . . . .	<i>iii</i>
ABSTRACT OF PROGRAM . . . . .	<i>v</i>
EVALUATION ABSTRACT . . . . .	<i>vi</i>
NARRATIVE ANALYSIS . . . . .	<i>vii</i>
Objectives . . . . .	1
Choosing Participants . . . . .	2
Description of Participants . . . . .	3
Evaluation Methods . . . . .	9
Data Analysis and Data Presentation . . . . .	10
Findings/Conclusions . . . . .	48
Recommendations . . . . .	52
STATE DEPARTMENT OF EDUCATION REPORT FORMS . . . . .	53
Cover Form . . . . .	55
Extent of Adaption . . . . .	56
Educational Materials Produced by the Project . . . . .	57
Title IV, Part C Areas of Influence . . . . .	58
Extent of Participation in Project Staff Development . . . . .	59
Tables	
EV 77.01 (A) . . . . .	60
EV 77.01 (B) . . . . .	62
EV 77.02 (A) . . . . .	64
EV 77.02 (B) . . . . .	71
EV 77.02 (C) . . . . .	81
EV 77.03 (A, B and C) . . . . .	84
EV 77.04 . . . . .	87
EV 77.08 . . . . .	93
EV 77.11 (A) . . . . .	94
EV 77.11 (B) . . . . .	95

	Page
APPENDIX A -- SUPPLEMENTARY EVALUATION DATA . . . . .	101
ONGOING CRT MASTERY TESTS DATA	
APPENDIX B -- SUPPLEMENTARY EVALUATION DATA . . . . .	145
CTBS TEST DATA BY SCHOOL	
APPENDIX C -- SITE DESCRIPTIVE INFORMATION . . . . .	159
APPENDIX D -- EVALUATION INSTRUMENTS . . . . .	173
APPENDIX E -- MANAGEMENT FORMS . . . . .	199

## ABSTRACT OF PROGRAM

### INTRODUCTION

Project TELEMATH represents a cooperative endeavor between an electronics manufacturer (Gremlin Industries) and the San Diego Unified School District to develop and test a computer-based instructional system which will be within the budget capabilities of most schools. The equipment consists of a self-contained, compact micro-computer which delivers district-written mathematics curriculum via a standard television set. The computerized videographic system is designed for small group instruction to improve basic mathematics computational skills. Activities have been written by district personnel to reinforce each of the districts' computational objectives from Level 3 through Level 6.

### GOAL

The major goal of the project was to evaluate the effectiveness of a computerized videographic system in improving basic mathematics skills.

### INSTRUCTIONAL STRATEGY

Fourth and fifth grade students from eight elementary schools (six public and two non-public) participated in the first year of the project. Students received their regular mathematics instruction, less two half hour periods per week when they were pulled out in groups of two to four to use the TELEMATH system. Activities were programmed into the computerized videographic system based on the students diagnosed needs. Drill and practice activities appeared on the television screen and students interacted with the computer by operating hand-held, remote controlled keyboards.

An attempt was made to maximize student motivation by combining, (1) a micro-computer, (2) a television screen and (3) a personalizing link between equipment and student. Personalization was accommodated by referring to individual students by name on the screen throughout each activity. Immediate feedback to individual student responses enhanced the personalization.

### FUTURE IMPLEMENTATION

During the second year the project will be expanded to concentrate on computational objectives in grades three through eight. It is anticipated that by the end of the third year project students in these grades will be receiving TELEMATH instruction for all basic mathematics skills as outlined in district mathematics guides, Level K through 8.

## EVALUATION ABSTRACT

There were five components in Project TELEMATH's 1976-77 effort. They were Student Instruction, Staff Development, Curriculum Development, Evaluation/Research, and Management.

### EVALUATION PROCEDURES

In the Student Instruction Component, there were four objectives. The evaluation of the first objective involved criterion-referenced mastery tests which were administered to TELEMATH students throughout the school year. In late May, criterion-referenced survey achievement tests were administered to all TELEMATH and comparison students to evaluate the level of attainment of the second objective. The assessments of the third and fourth objectives were based upon end of year test results using standardized norm-referenced tests. The third objective contrasted TELEMATH students' achievement with historical data. The fourth objective compared TELEMATH and comparison students' achievement on the standardized posttests.

There were two objectives in the Staff Development Component. A performance test was administered to key teachers to assess their functional proficiency of the TELEMATH computer systems. To evaluate the second staff development objective, the project evaluator observed the instructional systems in operation in the TELEMATH schools.

The evaluation of the attainment of the two objectives of the Curriculum Development Component was based upon observations of the materials being utilized. The Evaluation Component and Management Component possessed one objective each. These two process objectives were assessed by the degree of implementation of the pre-specified evaluation and management activities contained within the initial application for Title IVC funding.

### EVALUATION RESULTS

The consistency of results in the four Student Instructional Component objectives plus the levels of statistical significance in the two TELEMATH vs. comparison student objectives, unequivocally indicate a treatment effect in favor of the TELEMATH population. The random assignment of students to TELEMATH and comparison groups within classes support the contention that differences are a result of the TELEMATH project -- not an "outstanding teacher" effect.

The staff development activities provided the key participants the necessary skills to implement the TELEMATH project as planned. The reinforcement drill activities needed for the project were written and converted into computer programs in the summer and fall of 1976. The Evaluation/Research and Management Component objectives and activities were implemented as specified in the project plan.

### CONCLUSIONS

Project TELEMATH would have to be classified as being very effective in meeting its objectives. The test score advantages in favor of TELEMATH students indicate that the project represents a cost effective approach to provide personalized instruction to youngsters. The overriding characteristic of the implementation of the project was the effective "grass roots" involvement of a group of dedicated educators. A set of recommendations are provided on page 52.

# NARRATIVE ANALYSIS

THE 1976-77 EVALUATION REPORT  
FOR THE ESEA, TITLE IV, PART C PROJECT

Project Title: Project TELEMATH Project Number 2390  
Local Educational Agency (LEA) San Diego Unified School District

OBJECTIVES

The following are the objectives which were submitted in the Spring of 1976 in Project TELEMATH'S initial application:

Instructional Component

- 1.0 Given one hour per week of computer/videographic instruction, October 1976 - May 1977, TELE-MATH target students will master 80% of the computation objectives in which they receive instruction.
- 2.0 Given one hour per week of computer/videographic instruction, October 1976 - May 1977, TELE-MATH target students will score significantly higher than the control group on an end-of-year post-test.
- 3.0 Given one hour per week of computer/videographic instruction October 1976 - May 1977:
  - a. TELE-MATH target students in above-average\* schools will, on the average, score at or above their highest mean score of the preceding three years (raw scores) as measured by the CTBS arithmetic computation section.
  - b. TELE-MATH target students in below-average\*\* schools will, on the average, reduce the gap between the national norm and the average of their preceding three years by one-third as measured by the CTBS arithmetic computation section.
- 4.0 Given one hour per week of computer/videographic instruction, October 1976 - May 1977, TELE-MATH target students will on the average, score significantly higher than the control group on the end-of-year CTBS arithmetic computation section (raw scores).

Staff Development Component

- 5.0 Given one pre-service workshop, mathematics laboratory teachers, (and instructional aides, if assigned) in target schools will, by October 1, 1976, demonstrate functional proficiency in computer/videographic system operation.
- 6.0 Given one pre-service and a minimum of three inservice workshops, mathematics laboratory teachers and instructional aides in target schools will, by February 1, 1977, demonstrate knowledge of each drill activity program format and its application to reinforce specific computation objective.

\*School median above the 50th percentile.

\*\*School median below the 50th percentile.



## Curriculum Development Component

- 7.0 By September 13, 1976, 75% of district level 4-6 mathematics objectives relating to computation will have reinforcing drill activities programmed for delivery to pupils via the computer/videographic system.
- 8.0 By February 1, 1977, 100% of district level 4-6 mathematics objectives relating to computation will have reinforcing drill activities programmed for delivery to pupils via the computer/videographic system.

## Evaluation/Research Component

- 9.0 By June 30, 1977 the evaluator will have completed all periodic and quarterly checks as required by the "Evaluation Specification Activities" delineated for each project component and will furnish the project director with a statistical and analytical recap of evaluation findings as specified in "Evaluation Specifications for Objectives," 1.0, 2.0, 3.0 and 4.0.

## Management Component

- 10.0 By October 11, 1976, all planning, site selection, assignment of personnel, and receipt of hardware and curricular materials for the implementation of the project will be completed.

## CHOOSING PARTICIPANTS

Approximately 200 Grade 4 and 200 Grade 5 students who attended Encanto, Freese, Green, Linda Vista, Marvin or Scripps Elementary Schools were chosen to be TELEMATH participants for the 1976-77 school year.

The students who participated in Project TELEMATH as "project participants" or "comparison students" were randomly assigned from within intact classes in the six project schools. Before describing the randomization process of the students, the criteria for the initial selection of participating schools is reviewed below. From the initial funding application the criteria were:

- o Schools must have sufficient student population to provide target and control groups large enough to give validity to evaluation findings.
- o A high level of support must be predicted from administration, teachers and parents.
- o A mathematics laboratory or learning center must be available to contain project equipment and activities.
- o There must be wide enough differences among the schools' pupil achievement levels, socioeconomic neighborhoods, ethnic makeup, and geographic locations to test the effectiveness of computer/videographic instruction for many types of student populations.

With the cooperation of site administrators and teachers at each of the six pre-selected schools, the following randomization process was defined: Rosters of Grade 4 and 5 students were provided to the project evaluator as of the end of the second week of the 1976-77 school year (September 24th) from teachers who chose to participate. From these rosters, two randomized groups were identified (using a computer program on the District's computer time-share system). For each classroom, the program evaluator identified one group of students as TELEMATH students and another group as comparison students. [A set of rules for randomization can be found in Appendix D.]

The rosters of TELEMATH and comparison students were returned to the school sites by the evaluator to further clarify the need for compliance of the students as grouped. Each roster included a list of alternate students for children who move from that classroom during the month of October. The list of alternates was placed in order of replacement by the evaluator. Students who left a classroom after the month of October were not replaced in either group.

The process described above was selected over a random assignment of students to treatment and control classrooms, with students assigned randomly before school began, because it offered many advantages. Some of the key considerations were: Highly mobile school populations in some schools during the summer months would have required reassignment of students in the fall; a potential teacher-bias might have been built into the project evaluation design; potential resistance of some teachers to be involved in "another project", as well as some teachers feeling that their students "never have an opportunity to participate in an innovative experience"; and the assignment process selected seemed to offer more flexibility for events which could not be anticipated. There were other considerations, but these above were the key factors. The "pull-out" nature of the learning centers at the schools permitted this method of random assignment to be selected.

#### DESCRIPTION OF PARTICIPANTS

Each student who participated as TELEMATH or comparison students attended one of the following schools: Encanto, Freese, Green, Linda Vista, Marvin and Scripps. Each of these schools met the screening criteria for schools as listed earlier in this report.

Encanto and Linda Vista are Title I schools, both in low-income areas, but widely separated geographically. Minority enrollment at Encanto is 62.8%; at Linda Vista 55.3%. Freese, with 74.3% minorities, receives S.B. 90 funds. Green (8.6% minority) and Marvin (9.2%) are in middle-income neighborhoods. Scripps (8%) is a middle-to-high-income school located near research and university centers. (A detailed description for each of the TELEMATH schools may be found in Appendix C.)

A wide range of achievement levels for the respective schools was designed into the project. Inspection of individual student data indicated considerable overlap of achievement between schools. That is, many high achieving students attended lower achieving schools\*, and visa versa.

\*School historical median above the 50th percentile = "Higher Achieving Schools"  
School historical median below the 50th percentile = "Lower Achieving Schools"

As an indication of achievement levels at the beginning of the project (October 1976), Tables 1 and 2 provide grade equivalent data for TELEMATH students and comparison students for Grades 4 and 5, respectively. These tables illustrate that the random assignment functioned well for the dimension of arithmetic computation. Table 3 provides more detailed pretest data by school separated by TELEMATH and comparison students. Table 4 contains raw score and grade equivalent data for students grouped by low and high achieving schools.

Based upon the CTBS computation subtests results, the data contained within these tables indicate that the random assignment process provided two equivalent groups. This conclusion is especially true for project wide data grouping, and the *Higher and Lower Achieving School* groupings. The conclusion is generally true for school-level groupings, but not in all cases (e.g., Linda Vista regular year Grade 5).

It should be clarified that the data presented in Tables 1-4 are for students as of the beginning of the project year. Due to mobility factors there was a slight attrition of the number of students in both TELEMATH and comparison groups. The data which will be presented for objective outcomes will include only the students who have both pretest and posttest data.

TABLE 1

AVERAGE GRADE EQUIVALENT SCORES FOR GRADE FOUR  
PRETEST DATA

SCHOOL	TELEMATH STUDENTS		COMPARISON STUDENTS	
	Number	Average Score	Number	Average Score
ENCANTO	37	3.3	37	3.3
FREESE	40	3.3	40	3.2
GREEN	25	4.7	25	4.2
LINDA VISTA (Year Round)	20	2.9	19	2.8
LINDA VISTA (Reg. Year)	21	3.2	17	3.5
MARVIN	37	3.7	39	3.7
SCRIPPS	17	4.1	15	4.0
COMBINED	197	3.5	192	3.5

CTBS, Level 1, Form S administered October 11-22, 1976

TABLE 2

AVERAGE GRADE EQUIVALENT SCORES FOR GRADE FIVE  
PRETEST DATA

SCHOOL	TELEMATH STUDENTS		COMPARISON STUDENTS	
	Number	Average Score	Number	Average Score
ENCANTO	32	4.7	35	4.7
FREESE	40	4.9	40	4.7
GREEN	34	5.6	33	5.3
LINDA VISTA (Year Round)	19	4.9	21	4.9
LINDA VISTA (Reg. Year)	17	4.6	15	5.0
MARVIN	41	5.0	43	5.2
SCRIPPS	18	5.6	18	5.7
COMBINED	201	5.0	205	5.0

CTBS, Level 2, Form S administered October 11-22, 1976

TABLE 3

STATISTICAL CHARACTERISTICS OF NORM-REFERENCED  
PRETESTS (CTBS) FOR TELEMATH AND COMPARISON STUDENTS

SCHOOL	GRADE	TELEMATH			COMPARISON		
		N	$\bar{X}$	S.D.	N	$\bar{X}$	S.D.
ENCANTO	4	37	26.46	12.20	37	26.65	11.89
	5	32	23.81	8.53	35	24.08	7.02
FREESE	4	40	26.92	11.40	40	25.02	12.31
	5	40	25.70	7.78	40	23.92	8.73
GREEN	4	25	43.48	5.22	25	40.16	7.57
	5	34	32.24	7.75	33	30.39	9.40
LINDA VISTA (Year Round)	4	20	18.90	14.80	19	17.89	16.03
	5	19	25.79	8.99	21	24.05	9.80
LINDA VISTA (Reg. Year)	4	21	24.76	11.61	17	29.53	15.81
	5	17	22.59	6.18	15	25.60	10.08
MARVIN	4	37	34.00	11.06	39	35.44	10.79
	5	41	27.17	9.46	43	28.58	7.71
SCRIPPS	4	17	38.65	9.93	15	37.87	7.75
	5	18	31.72	9.54	18	32.89	7.24
COMBINED	4	197	30.23	11.22	192	29.93	11.92
	5	201	27.09	8.43	205	26.89	8.47

N = Number of students

$\bar{X}$  = Arithmetic Mean

S.D. = Standard Deviation

TABLE 4

STATISTICAL CHARACTERISTICS OF CTBS PRETEST  
DATA FOR TELEMATH AND COMPARISON STUDENTS  
SEPARATED BY HIGH AND LOW ACHIEVING SCHOOLS

GROUP	TELEMATH STUDENTS				COMPARISON STUDENTS			
	N	Raw $\bar{X}$	Raw S.D.	G.E. $\bar{X}$	N	Raw $\bar{X}$	Raw S.D.	G.E. $\bar{X}$
GRADE 4								
Low Achieving Schools	118	25.03	12.31	3.2	113	24.71	13.42	3.2
High Achieving Schools	79	38.00	9.34	4.0	79	37.40	9.35	3.9
GRADE 5								
Low Achieving Schools	108	24.67	8.02	4.8	111	24.22	8.64	4.7
High Achieving Schools	93	29.90	8.89	5.3	94	30.04	8.26	5.3

Low Achieving Schools = Encanto, Freese and Linda Vista (Based upon historical data)

High Achieving Schools = Green, Marvin, Scripps (Based upon historical data)

$\bar{X}$  = Mean Value

S.D. = Standard Deviation

G.E. = Grade Equivalent

## EVALUATION METHODS

### Instructional Component

To measure student gains in arithmetic computation on Objectives 1.0 through 4.0 (see objectives section), three types of measurements were used. They were:

- o Criterion-referenced mastery tests which were administered to students throughout the school year (see Objective 1.0, TELEMATH students only).
- o Criterion-referenced survey tests including all San Diego Unified "basic" objectives for the appropriate grade levels were administered in late May, 1977 as a measure of retention of skills mastered in Objective 1.0 (see Objective 2.0, TELEMATH and comparison groups).
- o Norm-referenced tests (Computation Subtests, CTBS, Form S, Level 1 for Grade 4 and Level 2 for Grade 5) were administered on a pre-post basis (see Objectives 3.0 and 4.0, TELEMATH and comparison groups).

The criterion referenced mastery tests were administered to individual students by the math center teachers, the students' classroom teachers and/or the TELEMATH aides. Students were given the opportunity to exhibit mastery on tests whenever they and their teachers mutually agreed that the students were apparently ready. Individual profiles of student progress were maintained by classroom teachers or the TELEMATH instructional aides.

Each TELEMATH and comparison student was administered a survey test of arithmetic skills for his respective grade level during the week of May 17-22, 1977 (See Appendix D, "Final Achievement Test"). The tests were administered by the students' classroom teachers and scored by the TELEMATH aides. Students were given as much time as they needed to complete their efforts (generally 35 to 40 minutes).

All TELEMATH and comparison students were administered the Arithmetic Computation Subtests of the CTBS which were appropriate to their grade level in early October (Oct. 11-15) and again in mid April (April 13-20). These tests were administered by the students' classroom teachers. Testing time specifications were complied with by all schools as specified in the CTBS Examiners Manual (40 minutes). All tests were machine-scored, with the test data maintained in the Cumulative Test File of the San Diego City Data Processing Center.

### Staff Development Component

To measure teacher and aide knowledge of the theory and operation of the TELEMATH system, two objectives were assessed. The methods of evaluation were:

- o A performance test was administered to a key teacher from each TELEMATH school (see Objective 5.0, TELEMATH key teachers).
- o Each TELEMATH aide was observed to assess his/her knowledge and application of the reinforcement activities which were available at midyear (see Objective 6.0, TELEMATH aides and/or key teachers).

Prior to receipt of any TELEMATH equipment, a key teacher from each TELEMATH site had to demonstrate functional proficiency of the TELEMATH hardware system. In late September, two workshops and testing situations occurred. At these sessions, a performance checklist was completed by the project evaluator or project coordinator for each key teacher (see Appendix D, "Equipment Performance Checklist").

During the midyear visit and again during the third quarter visit, the project evaluator observed TELEMATH aides at each site to validate their proficiency of the entire arsenal of TELEMATH programs available. An informal sampling technique was supplemented by evaluator questions to confirm the aides' awareness.

#### Curriculum Development Component

The evaluation of the attainment of the two objectives of this component was based upon site observations of the materials described (see Objectives 7.0 and 8.0).

#### Evaluation Component

The attainment of the single objective of this component (see Objective 9.0) is evidenced by the existence of this report; specifically the State Reporting Forms EV 77.02(A) and EV 77.02(B). Further validation can be obtained from the State Department consultant for Project TELEMATH, Ira Barkman.

#### Management Component

The single objective of this component (see Objective 10.0), was assessed by ongoing observation by the Project Evaluator of the management activities and objectives which were explicated within the application for funding (see Appendix E, Management Forms).

#### DATA ANALYSIS AND DATA PRESENTATION

The analysis and presentation portions of this report have been combined in an effort to minimize redundancy of responses and to provide a clearer and more continuous narrative. Data analyses and data presentations are presented by objective in the narrative which follow.

#### Instructional Component

*Objective 1.0 Given one hour per week of computer/videographic instruction, October 1976 - May 1977, TELEMATH target students will master 80% of the computation objectives in which they receive instruction.*



Table 5 and Figures 1 and 2 contain data relevant to the evaluation of Objective 1.0. Throughout the year, students completed criterion-referenced mastery tests which corresponded to the District's basic computational objectives (see instructional objectives listed in Appendix E). Individualized records were maintained by classroom teachers or TELEMATH personnel which indicated the objectives in which the students had received instruction and in which the students demonstrated mastery (adequate proficiency).

Table 5 contains data of the number of objectives mastered and the percentage of the number of objectives instructed. The information is separated by quarter and by grade level. The attainment of the criterion level of the objective is indicated by the data for the end of year (fourth quarter data). The aggregated data for all six schools indicate that Grade 4 students mastered 81.4% of the objectives in which they received instruction. The corresponding value for Grade 5 was 80.4% mastery. Hence, the criterion level of 80% was attained by both grade levels.

Figures 1 and 2 provide a graphic display of the data contained in Table 5. Figure 1 illustrates the percentage mastery data by quarter for both grade level groups. Improvement in terms of the relative proportion of objectives mastered each quarter is clearly displayed in the figure.

The absolute rate of progress of the students is shown in Figure 2. The dashed line segments indicate the average number of objectives which had been instructed, while the solid line segments illustrate the average number of objectives mastered.

In summary, the criterion level of 80% mastery of the objectives instructed was met. (For the reader interested in more detailed information -- quarterly progress data and individual school data -- histograms containing these data are contained in Appendix A.)

TABLE 5

NUMBER AND PERCENT OF ONGOING CRITERION-REFERENCED  
MASTERY TESTS COMPLETED BY TELEMATH STUDENTS SEPARATED BY QUARTER

GRADE LEVEL STATISTIC	1ST QUARTER		2ND QUARTER		3RD QUARTER		4TH QUARTER	
	# OF OBJ. MASTERS	PERCENT MASTERY	# OF OBJ. MASTERS	PERCENT MASTERY	# OF OBJ. MASTERS	PERCENT MASTERY	# OF OBJ. MASTERS	PERCENT MASTERY
GRADE 4								
Number of Students	173		186		180		178	
Mean	3.8	59.0%	6.4	66.8%	10.2	74.7%	12.6	81.4%
Standard Deviation	3.6	33.7%	4.3	26.9%	7.7	25.1%	7.2	20.6%
GRADE 5								
Number of Students	185		194		195		195	
Mean	5.2	61.6%	7.4	74.3%	11.2	79.3%	13.0	80.4%
Standard Deviation	3.9	32.0%	4.4	28.1%	6.9	24.0%	7.0	22.1%

FIGURE 1

PROPORTION OF MATH OBJECTIVES MASTERED WITH  
RESPECT TO THE OBJECTIVES

FIGURE 1

PROPORTION OF MATH OBJECTIVES MASTERED WITH  
RESPECT TO THE OBJECTIVES STUDENTS RECEIVED INSTRUCTION

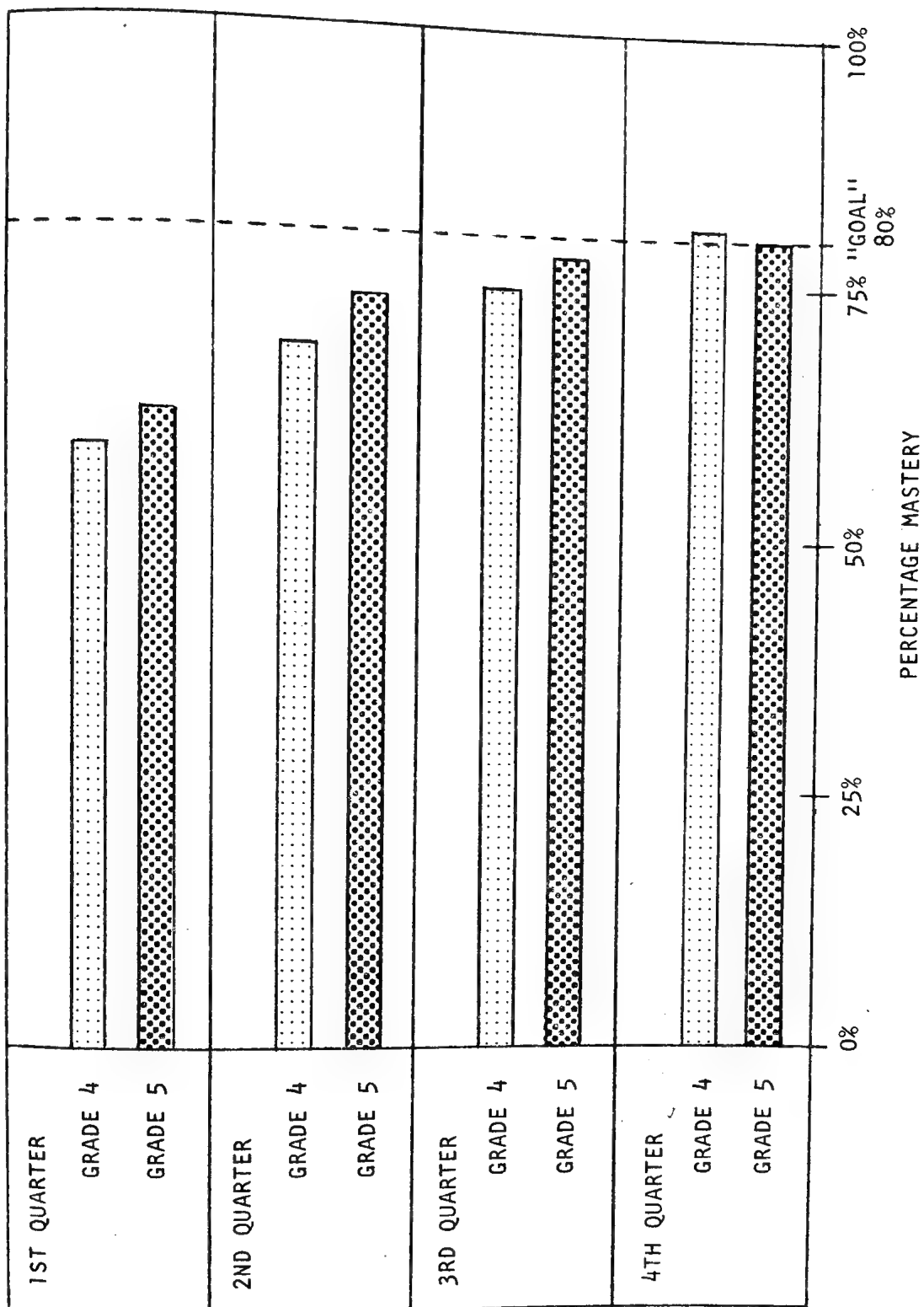
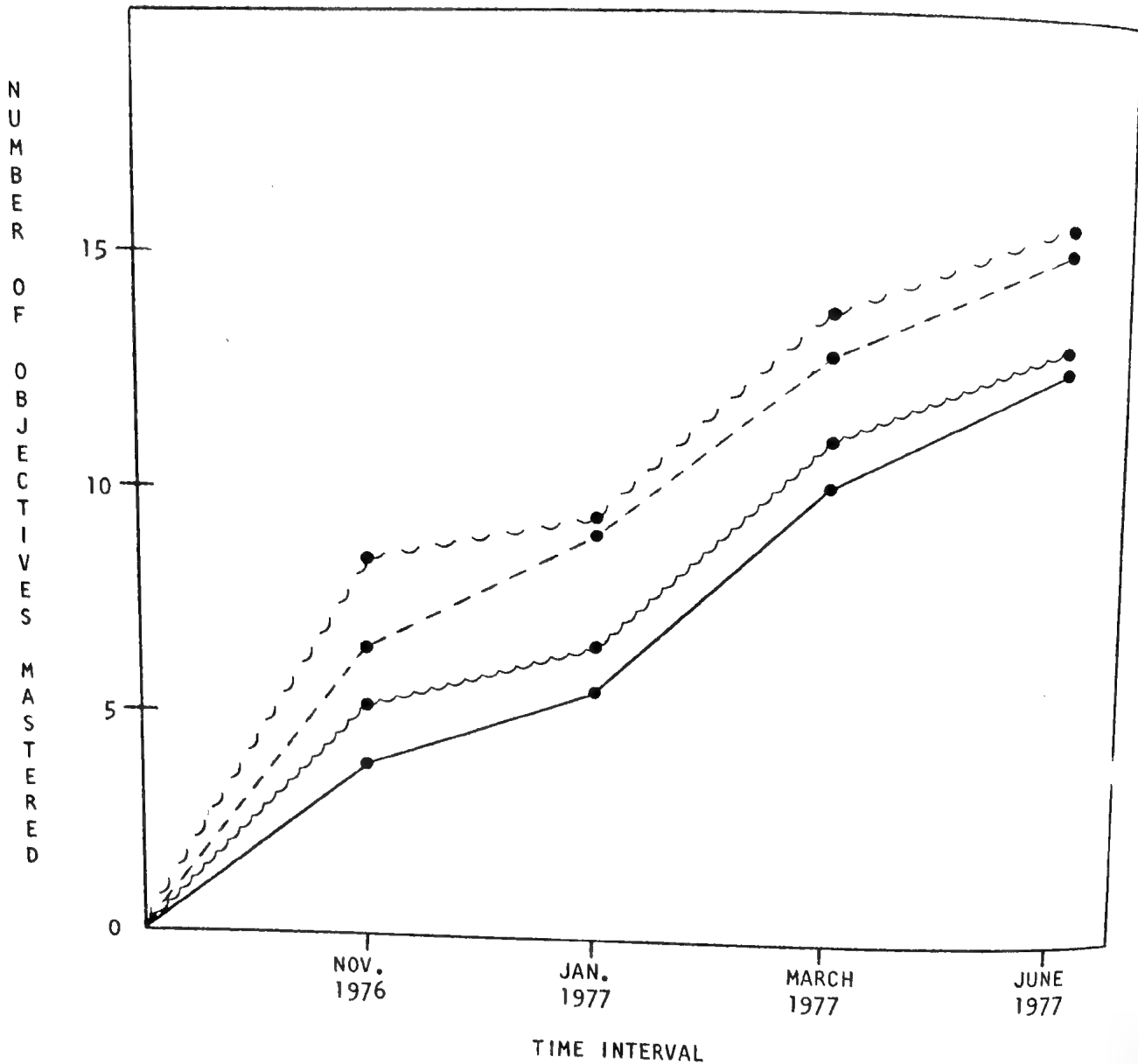


FIGURE 2

PROGRESS CHART

AVERAGE NUMBER OF OBJECTIVES "INSTRUCTED" AND "MASTERED"  
BY TELEMATH STUDENTS GRADES 4 AND 5



CODE:

GRADE 4

—●— "MASTERED"  
- - -●- - - "RECEIVED INSTRUCTION"

GRADE 5

~●~ "MASTERED"  
- · - · -●- · - · - "RECEIVED INSTRUCTION"

Objective 2.0 Given one hour per week of computer/videographic instruction, October 1976 - May 1977, TELEMATH target students will score significantly higher than the control group on an end-of-year post-test.

The data in Tables 6 and 7 and in Figures 3 through 8 relate to the evaluation of Objective 2.0. A randomized posttest-only design was used in the evaluation of this objective. As mentioned in the Description of Participants Section of this report, the combined school-level groups for TELEMATH and comparison populations were illustrated to be equivalent. At individual school sites, the equivalence of the groups might vary somewhat. Hence, the reader should exercise some caution when reviewing the school-level information contained in Tables 6 and 7.

The test data contained in Tables 6 and 7 consistently indicate that TELEMATH students outperformed the comparison students. In *Higher Achieving Schools*, the differences were statistically significant in favor of the TELEMATH group for both Grade 4 (Table 6) and Grade 5 (Table 7). This same conclusion is true for Grade 5 for *All Schools Combined*. The disproportionate number of *Lower Achieving School* students in Grade 4 ( $N = 107$  for TELEMATH vs. 88 for comparison) reduced the difference between the two combined groups. Hence, the difference was not statistically significant. Regardless, the advantage in favor of the TELEMATH group is decisive. If one were to pool the aggregated values across the two grade levels the difference in favor of the TELEMATH group is statistically significant ( $p < .02$  using a two tailed  $\chi^2$ -test.)

Figure 3 and Figure 4 are of assistance in illustrating the percentage differences for Grades 4 and 5, respectively. The vertical axis for each of these figures represents the percent of items correct. The bar graphs for *Higher Achieving Schools*, *Lower Achieving Schools* and *All Schools Combined* illustrate the combined data which are found in Tables 6 and 7.

Figure Sets 5 and 6 provide histograms of the distributions of scores on the criterion-referenced tests. ("CRT 4" represents 4th grade TELEMATH, "CRT 4C" represents 4th grade comparison, etc.). The statistics for mean, standard deviation and the sample size are provided for each histogram. Each dot represents a single student's score. The vertical axis indicates the frequency of a score, while the horizontal axis indicates the raw scores. (The numbers along the horizontal axis are in scientific notation. Hence,  $20E + 00 = 20 \times 10^0 = 20 \times 1 = 20$ , and  $50E - 01 = 50 \times 10^{-1} = 50 \times .1 = 5$ , etc.)

For the reader interested in contrasting the TELEMATH and comparison groups by *Higher* and *Lower Achieving School* clusters, Figure Sets 7 and 8 have been provided.

In summary, TELEMATH students consistently outperformed the comparison group on the end of year criterion-referenced tests. The level of significance ( $p < .02$ ) was beyond the level acceptable for the attainment of the objective ( $p < .10$ ). The objective was met.

TABLE 6

STATISTICAL CHARACTERISTICS OF CRITERION-REFERENCED TEST RESULTS  
TELEMATH GROUP VS. COMPARISON GROUP  
GRADE 4

SCHOOL/GROUP	TELEMATH GROUP				COMPARISON GROUP				DIFFERENCE#	
	N	RAW MEAN	S.D.	MEAN %	N	RAW MEAN	S.D.	MEAN %	RAW	PERCENT
ENCANTO	32	18.1	7.1	53%	28	14.3	9.1	42%	+3.8*	+11%
FREESE	37	17.3	6.3	51%	31	17.1	7.6	50%	+ .2	+ 1%
GREEN	23	26.9	3.8	79%	24	23.6	5.6	69%	+3.3**	+10%
LINDA VISTA	38	19.7	8.9	58%	29	20.3	8.8	60%	- .6	- 2%
MARVIN	35	21.9	6.7	64%	37	20.5	7.1	60%	+1.4	+ 4%
SCRIPPS	15	26.9	5.6	78%	14	26.1	7.4	77%	+ .4	+ 1%
COMBINED										
HIGH ACHIEVING SCHOOLS	73	24.4	6.1	72%	75	22.6	7.0	66%	+1.8*	+ 6%
LOW ACHIEVING SCHOOLS	107	18.4	7.5	54%	88	17.2	8.7	51%	+1.2	+ 3%
ALL SCHOOLS	180	20.8	7.6	61%	163	19.7	8.4	58%	+1.1	+ 3%

S.D. = Standard Deviation

#Positive differences (+) favor the TELEMATH group; negative differences (-) favor the comparison group.

\* p < .10      \*\* p < .05

FIGURE 3

PERCENT OF ITEMS CORRECT ON CRITERION-REFERENCED TEST

FIGURE 3

PERCENT OF ITEMS CORRECT ON CRITERION-REFERENCED TEST  
GRADE 4

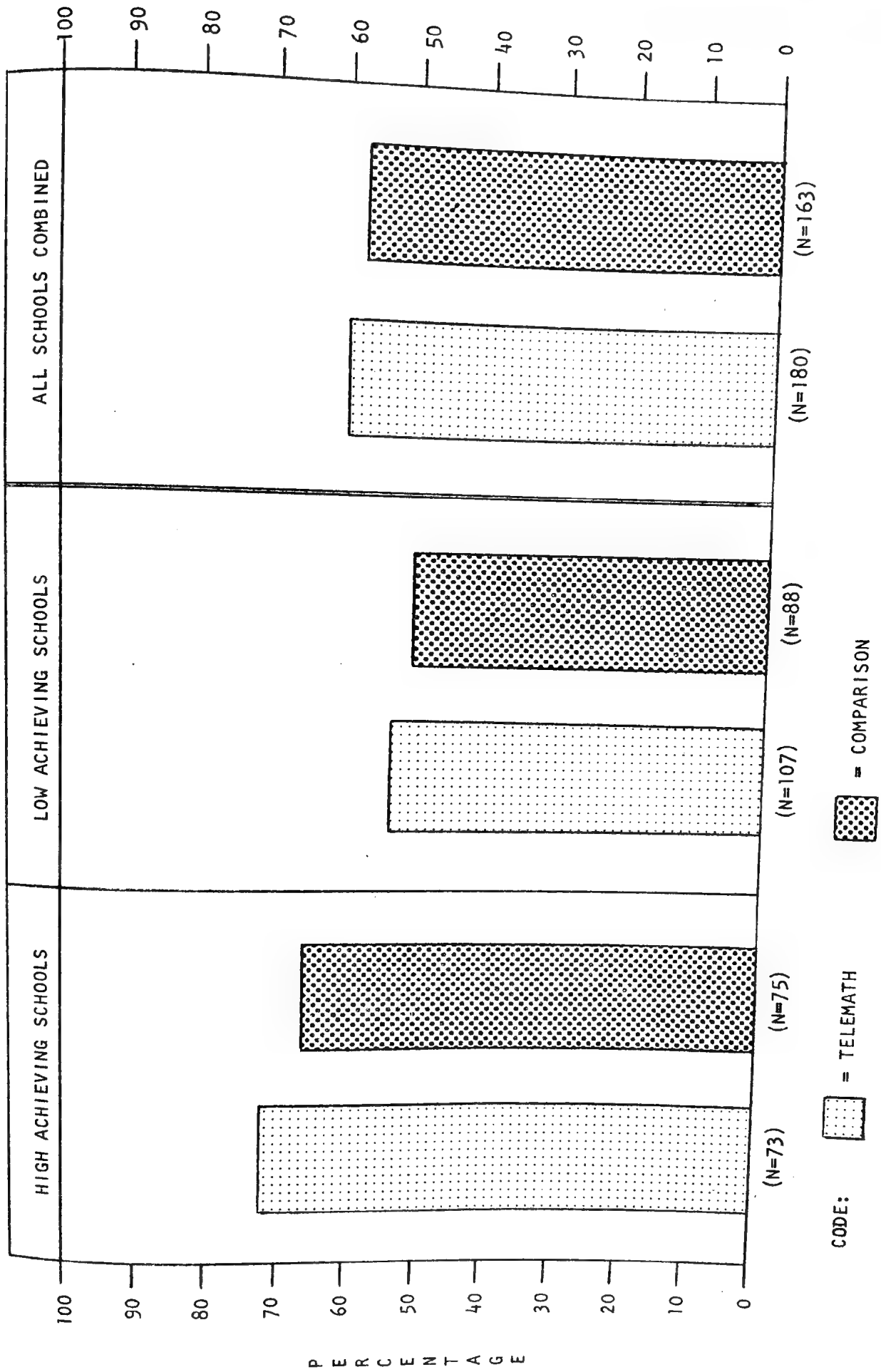


TABLE 7

STATISTICAL CHARACTERISTICS OF CRITERION-REFERENCED TEST RESULTS  
TELEMATH GROUP VS. COMPARISON GROUP  
GRADE 5

SCHOOL/GROUP	TELEMATH GROUP				COMPARISON GROUP				DIFFERENCE#	
	N	RAW MEAN	S.D.	MEAN %	N	RAW MEAN	S.D.	MEAN %	RAW	PERCENT
ENCANTO	26	16.8	7.8	44%	23	15.1	9.8	40%	+1.7	+ 4%
FREESE	39	19.1	9.6	50%	36	16.6	8.8	44%	+2.5	+ 6%
GREEN	33	23.9	6.4	63%	31	18.6	8.9	49%	+5.3**	+14%
LINDA VISTA	29	21.4	8.3	56%	24	22.0	7.2	58%	- .6	- 2%
MARVIN	38	24.9	9.5	66%	38	23.4	8.7	62%	+1.5	+ 4%
SCRIPPS	17	23.9	9.4	63%	17	22.4	8.5	59%	+1.5	+ 4%
COMBINED										
HIGH ACHIEVING SCHOOLS	88	24.3	8.4	64%	86	21.5	8.9	57%	+2.8**	+ 7%
LOW ACHIEVING SCHOOLS	94	19.2	8.8	51%	83	17.7	9.0	47%	+1.5	+ 4%
ALL SCHOOLS	182	21.7	9.0	57%	169	19.7	9.1	52%	+2.0**	+ 5%

S.D. = Standard Deviation

S.D. = Standard Deviation

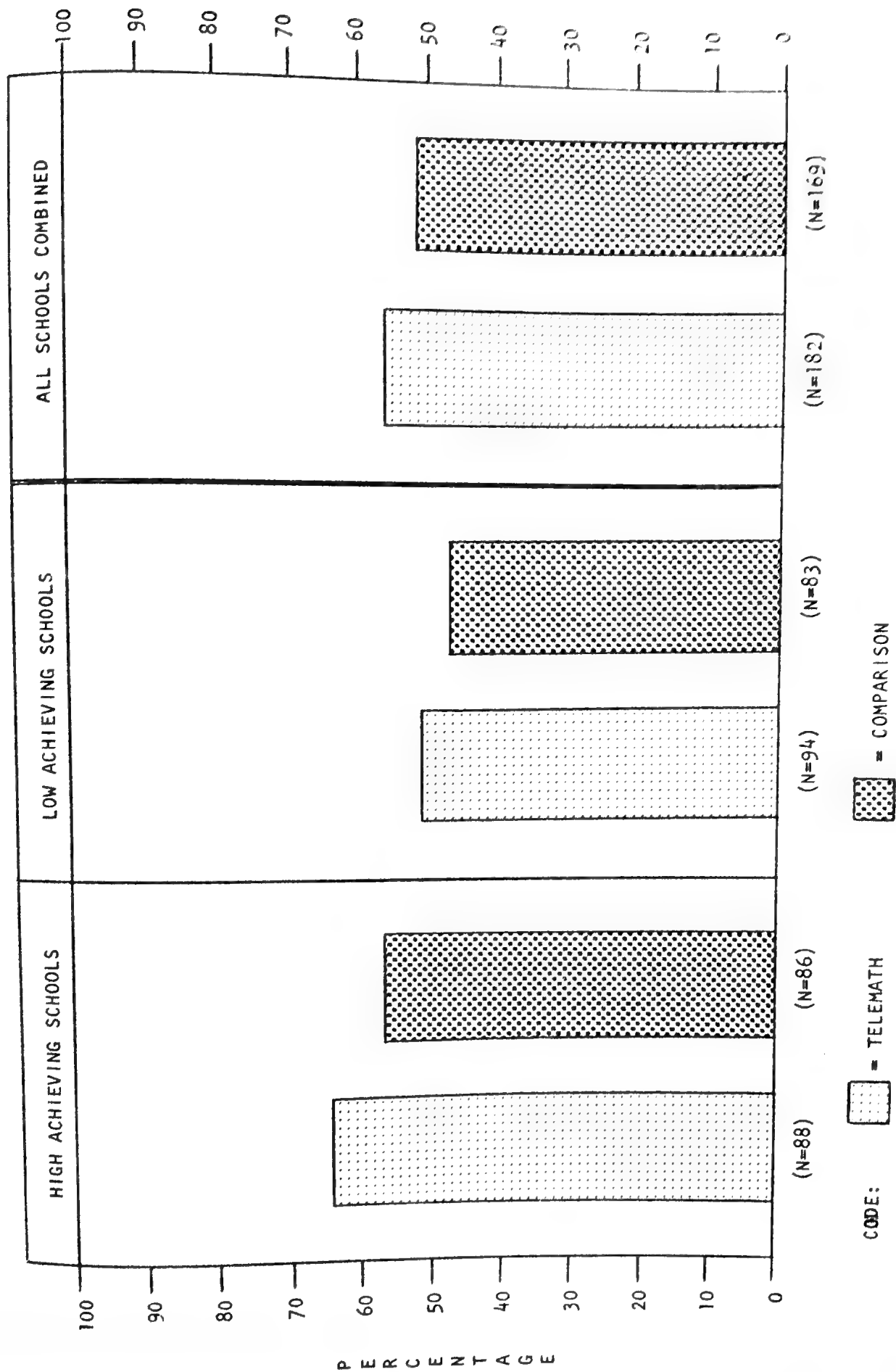
#Positive differences (+) favor the TELEMATH group; negative differences (-) favor the comparison group.

\* p &lt; .10      \*\* p &lt; .05

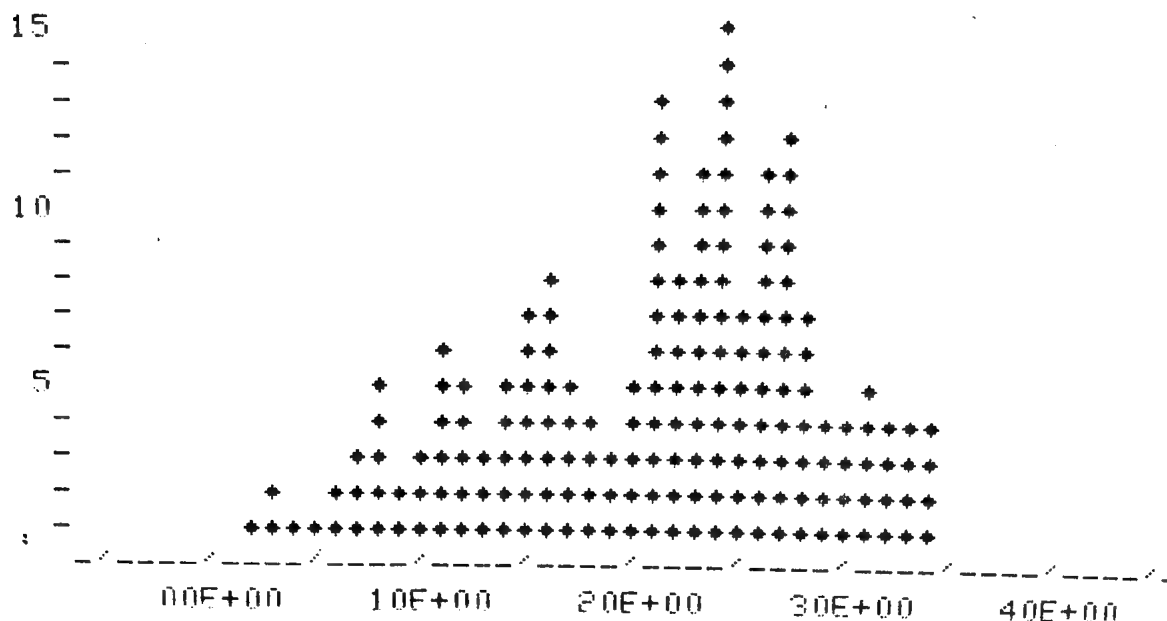
FIGURE 4  
PERCENT OF ITEMS CORRECT ON CRITERION-REFERENCED TEST  
GRADE 5



PERCENT OF ITEMS CORRECT ON CRITERION-REFERENCED TEST  
GRADE 5



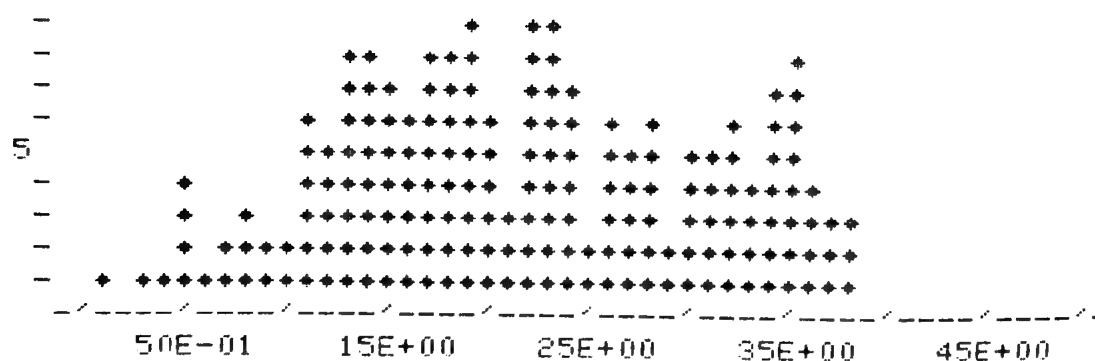
ABS. FREQ.



CRT 4

MEAN = 20.8333  
STD. DEV. = 7.57642  
SAMPLE SIZE = 180

ABS. FREQ.



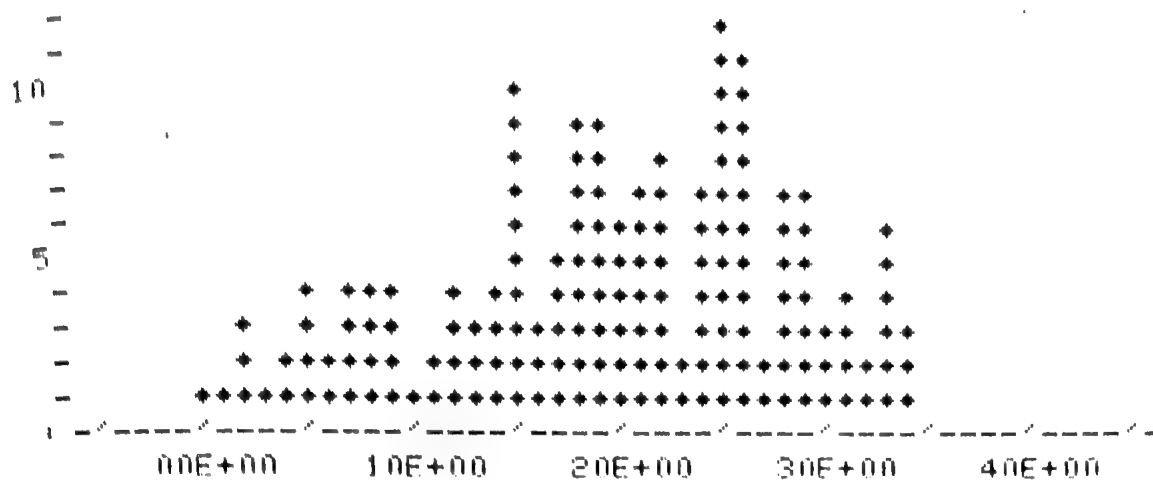
CRT 5

MEAN = 21.6648  
STD. DEV. = 8.96542  
SAMPLE SIZE = 182

FIGURE SET 5

CRITERION-REFERENCED TEST RESULTS  
TELEMATH GROUP GRADES 4 AND 5

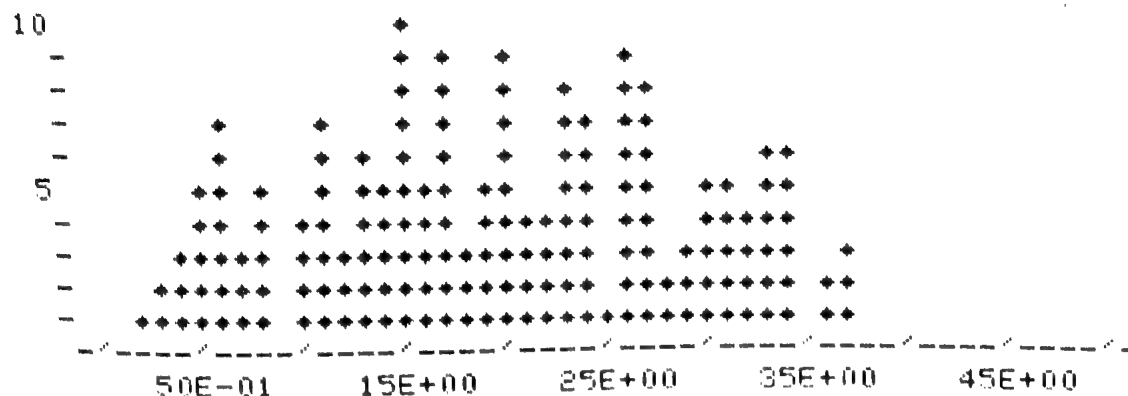
ABS. FREQ.



CRT 40

MEAN = 19.6994  
 STD. DEV. = 8.38733  
 SAMPLE SIZE = 163

ABS. FREQ.



CRT 50

MEAN = 19.6509  
 STD. DEV. = 9.12884  
 SAMPLE SIZE = 169

FIGURE SET 6

CRITERION-REFERENCED TEST RESULTS  
 COMPARISON GROUP GRADES 4 AND 5

FIGURE SET 7

PROJECT TELEMATH  
 SPRING CRITERION-REFERENCED TESTS RESULTS  
 GRADE 4 HIGH ACHIEVING SCHOOLS COMBINED GRADE 5

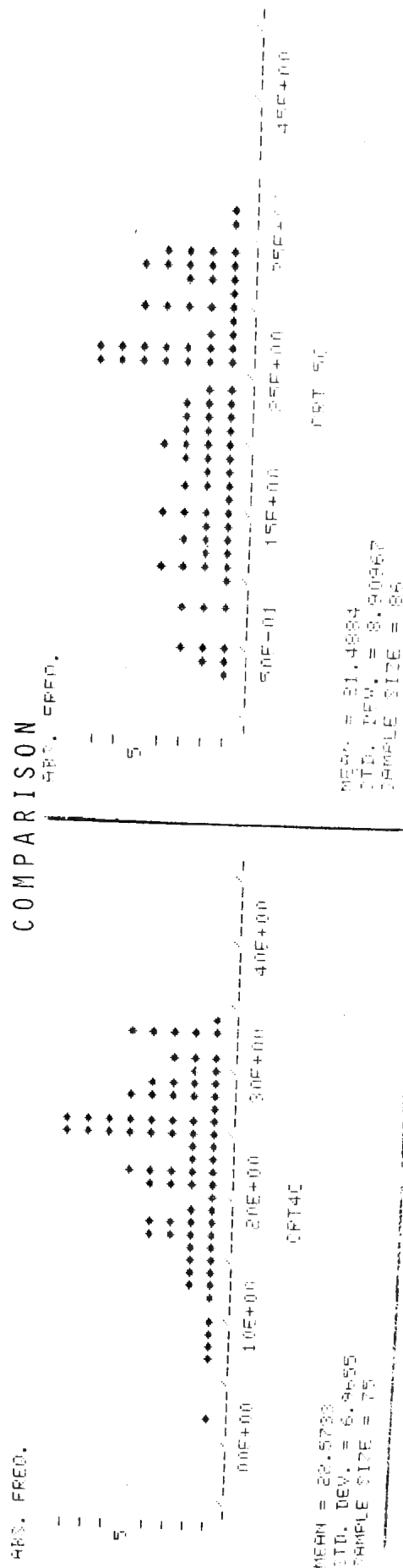
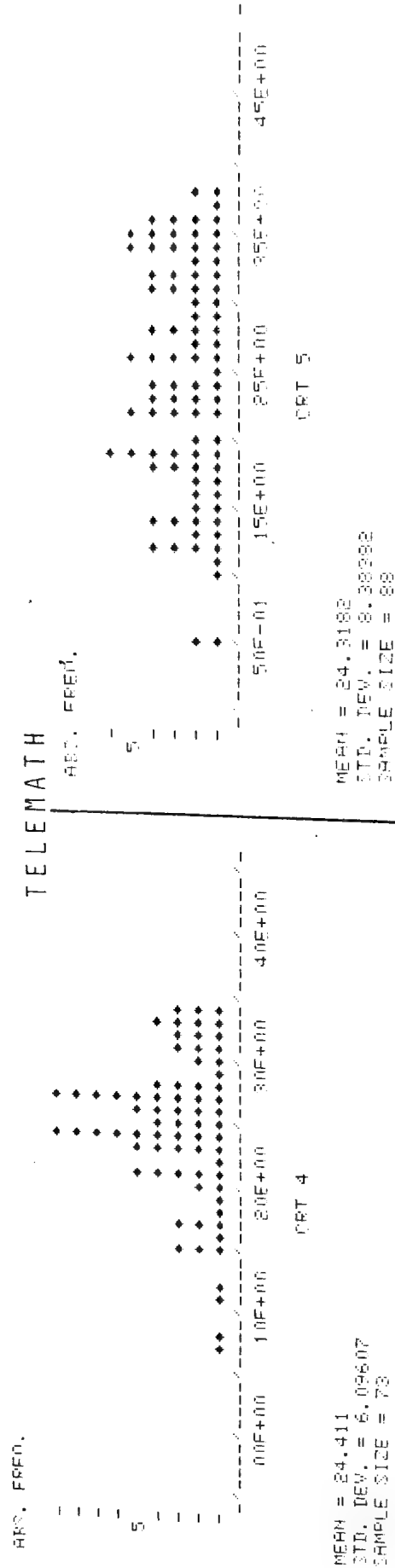


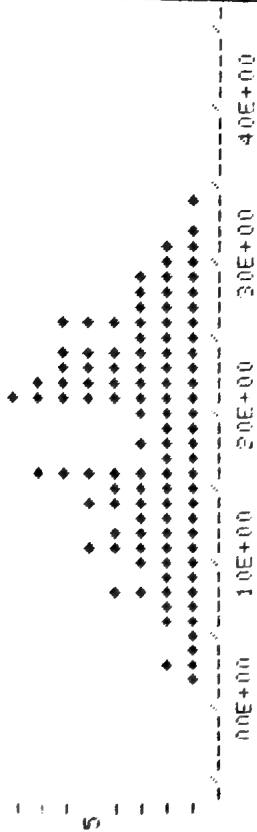
FIGURE SET 8

FIGURE SET 8

PROJECT TELEMATH  
 SPRING CRITERION-REFERENCED TESTS RESULTS

GRADE 4 LOW ACHIEVING SCHOOLS COMBINED GRADE 5

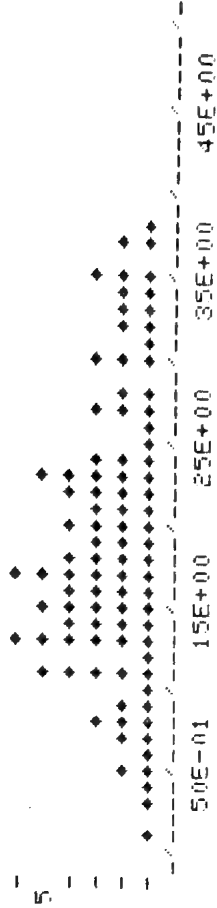
RES. FREQ.



MEAN = 18.3325  
 STD. DEV. = 7.54078  
 SAMPLE SIZE = 107

CPT 4L

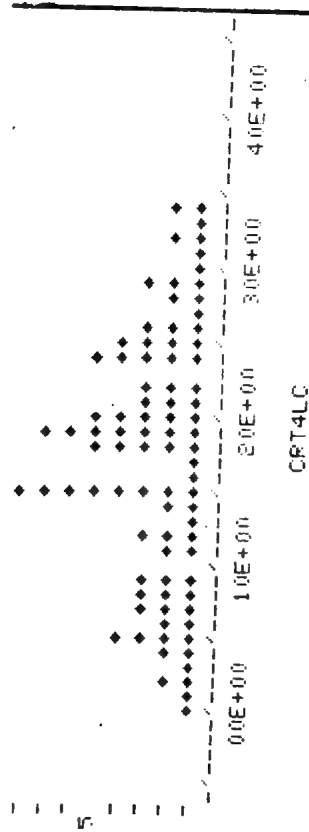
TELEMATH



MEAN = 19.1809  
 STD. DEV. = 8.81954  
 SAMPLE SIZE = 94

CPT 5L

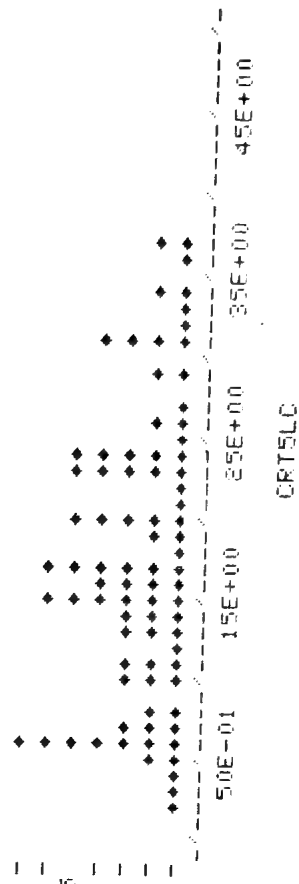
RES. FREQ.



MEAN = 17.25  
 STD. DEV. = 8.7484  
 SAMPLE SIZE = 88

CPT4LC

COMPARISON



MEAN = 17.747  
 STD. DEV. = 9.01323  
 SAMPLE SIZE = 83

CPT5LC

Objective 3.0 Given one hour per week of computer/videographic instruction October 1976 - May 1977:

- a. TELEMATH target students in above-average schools will, on the average, score at or above their highest mean score of the preceding three years (raw scores) as measured by the CTBS arithmetic computation section.

Historical achievement of the TELEMATH schools is presented in Tables 8 and 9. Table 8 contains historical and spring of 1977 norm-referenced data for the *Higher Achieving Schools*. Figure 9 provides a graphic illustration of the data. Table 9 and Figure 10 provide similar information for the *Lower Achieving Schools*.

Since none of the *Higher Achieving Schools* had norm-referenced test results for its Grade 4 or Grade 5 students, it was necessary to project a meaningful goal from the data which were available. (The data base that was available is provided for each school in Appendix C.) The goals for each school are presented in the middle column (baseline data high for 1973-76).

The TELEMATH group's tests results for each grade level for almost every school met or exceeded its historical high. Green School's Grade 5 was a fraction of a raw score below its goal, but essentially attained its goal to the nearest raw score. Figure 9 illustrates the level of attainment of the TELEMATH group's achievement as compared to each school's highest test performance, 1973-1976. The vertical axis represents the percentile rank. The bar graphs illustrate the attainment of Objective 3.0a for the *Higher Achieving Schools*.

Objective 3.0 Given one hour per week of computer/videographic instruction October 1976 - May 1977:

- b. TELEMATH target students in below-average schools will on the average, reduce the gap between the national norm and the average of their preceding three years by one-third as measured by the CTBS arithmetic computation section.

Table 9 and Figure 10 contain similar historical comparison information. The goal for the *Lower Achieving Schools* was to reduce the gap between the national norm and the average of the school's data for the preceding three years by one-third. The first column of Table 9 provides the historical average data. The second and third columns provide the desired and actual achievement levels, respectively. Figure 10 illustrates the data of the three columns of Table 9. The goals were met or exceeded for each grade level for each school. Near norm achievement was exhibited in many instances (e.g., Encanto and Freese, Grade 5, level of achievement was the 48th percentile for Grade 5 spring norms). Objective 3.0b was met.

In summary, both Objectives 3.0a and Objective 3.0b were met. TELEMATH students' performance during the spring of 1977 consistently met or exceeded the standards based on available historical data. *Higher Achieving Schools* averaged near the 65th percentile. *Lower Achieving Schools* averaged closer to the national norm than what had been anticipated.

TABLE 8

STATISTICAL COMPARISON OF PROJECT TELEMATH STUDENTS  
WITH HISTORICAL NORM-REFERENCED DATA  
HIGHER ACHIEVING SCHOOLS

SCHOOL GRADE LEVEL	BASELINE DATA PRETEST FOR 1976-77*			BASELINE DATA HIGH FOR 1973-76**			ACTUAL ACHIEVEMENT FOR 1976-77			PERCENT ATTAINMENT OF GOAL
	RAW MEAN	G.E.	%-ILE	RAW MEAN	G.E.	%-ILE	RAW MEAN	G.E.	%-ILE	
GREEN GRADE 4 GRADE 5	41.8	4.6	62	45	5.1	65	46.8	6.0	84	100%+
	31.4	5.5	60	36	6.3	60	35.6	6.3	60	99%
MARVIN GRADE 4 GRADE 5	34.7	3.7	41	43	4.7	53	43.2	4.7	53	100%+
	27.9	5.0	51	35	6.1	57	35.0	6.1	57	100%
SCRIPPS GRADE 4 GRADE 5	38.3	4.0	48	44	4.9	59	45.5	5.5	75	100%+
	32.3	5.6	64	37	6.5	64	37.9	6.7	67	100%+
COMBINED GRADE 4 GRADE 5	38.0	4.0	48	--			44.8	5.1	66	
	29.9	5.3	58				36.9	6.5	64	

G.E. = Grade Equivalent Value

%ILE = Percentile Rank Value

\*TELEMATH and comparison students 1976-77 pretest data (pooled).

\*\*Goal - projected from Grade 6 data (fall testing for 1973-74, 1974-75, 1975-76) or Grade 4 and 5 pretest data (percentile for the fall of 1976-77), whichever was higher to the nearest raw score.

FIGURE 9

GRAPHIC COMPARISON OF TELEMATH STUDENTS' 1977 SPRING CTBS RESULTS VS.  
HIGHEST HISTORICAL DATA (1973-1976) FOR HIGHER ACHIEVING SCHOOLS

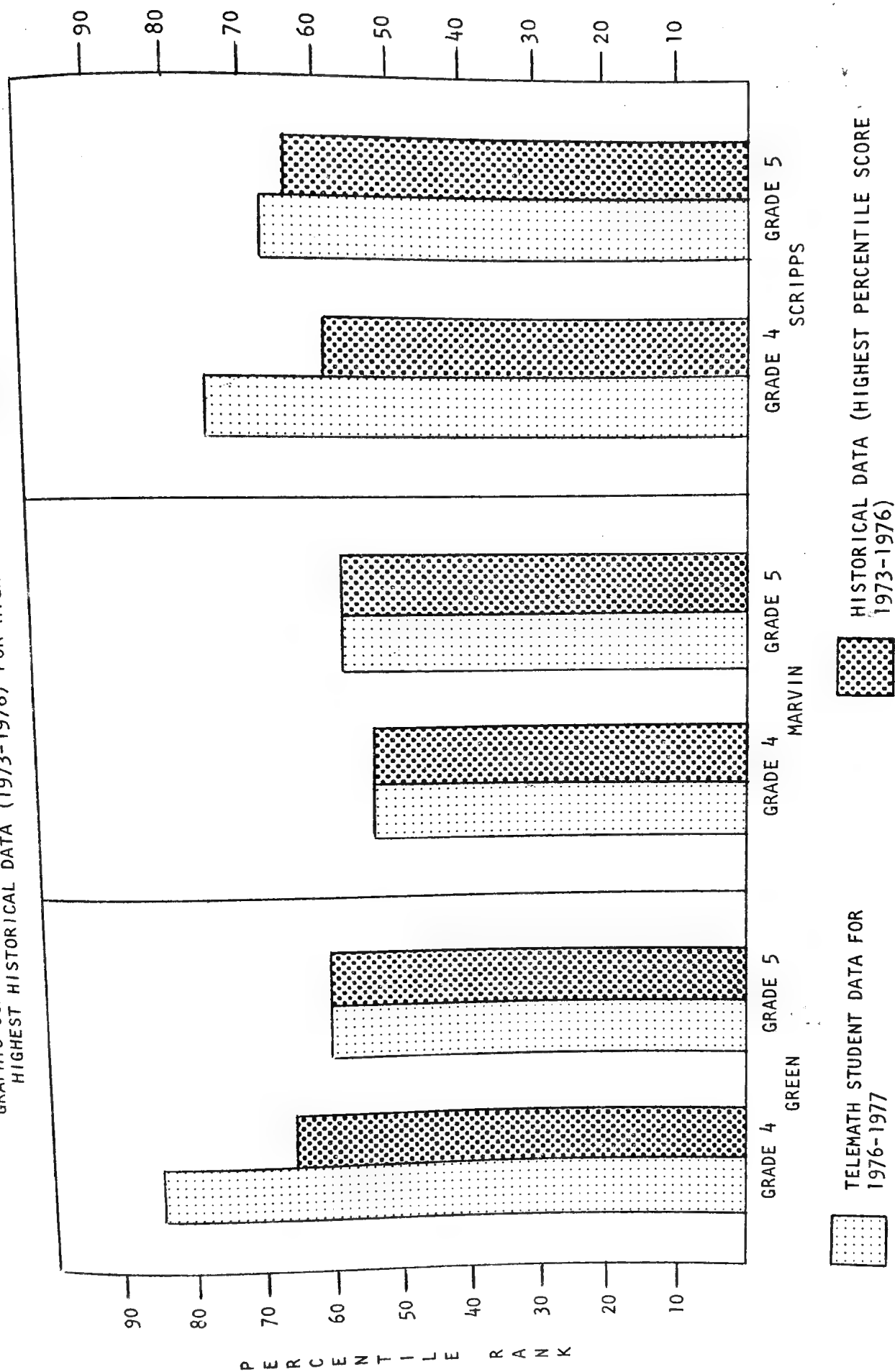




TABLE 9

STATISTICAL COMPARISON OF PROJECT TELEMATH STUDENTS  
WITH HISTORICAL NORM-REFERENCED DATA  
LOWER ACHIEVING SCHOOLS

SCHOOL GRADE LEVEL	BASELINE DATA AVERAGE OF 1973-1976*			DESIRED ACHIEVEMENT** FOR 1976-1977			ACTUAL ACHIEVEMENT			PERCENT ATTAINMENT OF GOAL
	RAW MEAN	G.E.	%-ILE	RAW MEAN	G.E.	%-ILE	RAW MEAN	G.E.	%-ILE	
ENCANTO	36	3.8	31	38.1	4.0	36	40.6	4.4	44	100%+
	25	4.8	29	27.5	5.1	37	32.0	5.6	48	100%+
FREESE	36	3.8	31	38.1	4.0	36	40.8	4.4	44	100%+
	28	5.1	37	29.5	5.3	43	32.0	5.6	48	100%+
LINDA VISTA	34	3.7	28	36.8	3.9	33	36.7	3.9	33	100%~
	25	4.8	29	27.5	5.1	37	31.2	5.5	45	100%+
COMBINED	35.3	3.7	30	37.7	4.0	36	39.3	4.1	38	100%+
	26.0	4.9	32	28.2	5.1	37	31.7	5.6	48	100%+

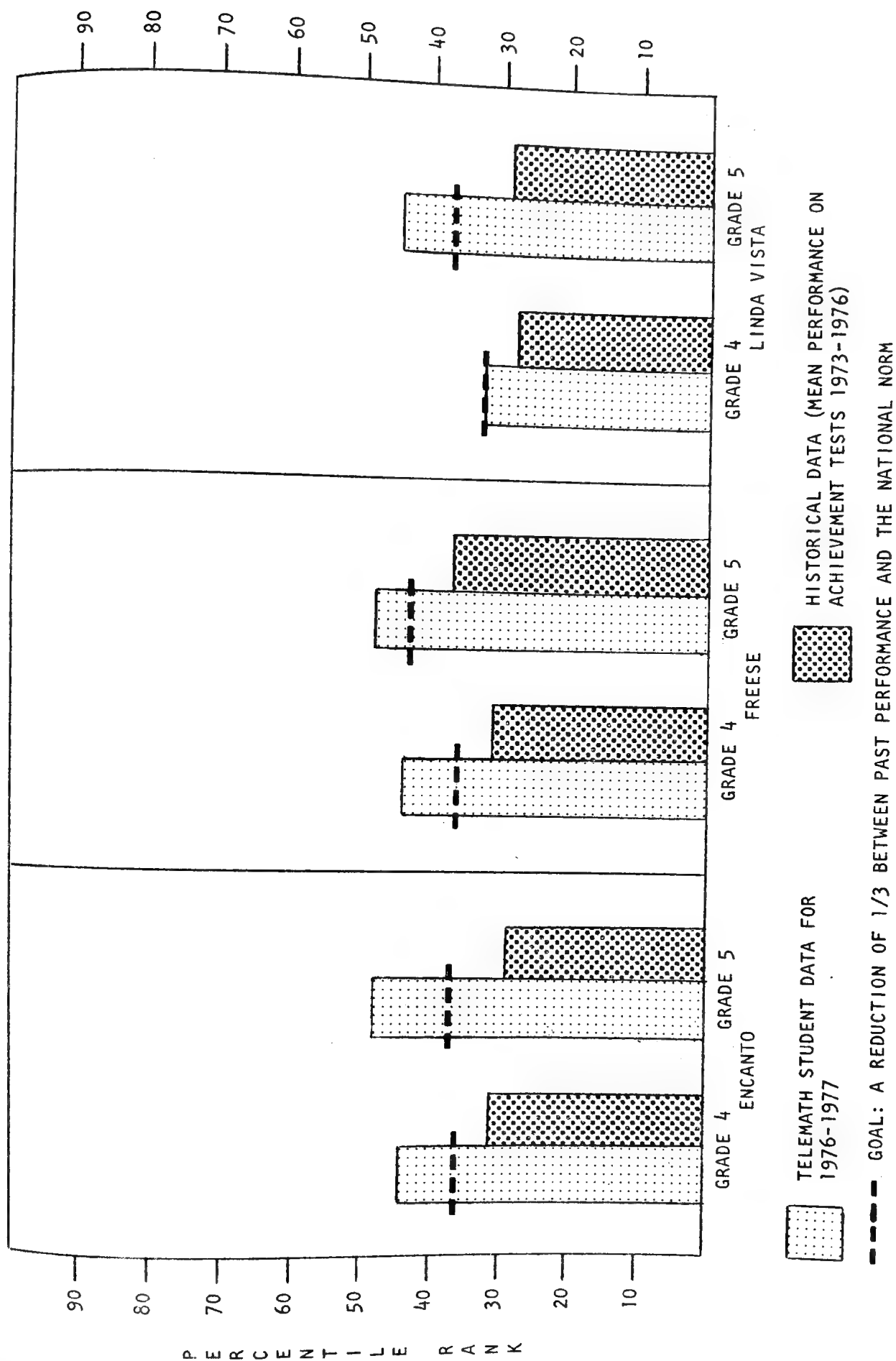
G.E. = Grade Equivalent Value

% - ILE = Percentile Rank Value

\*Average grade equivalent value for the respective grade level (for the years 1973-74, 1974-75, 1975-76) projected to spring values to the nearest raw score.  
 \*\*A reduction of one-third of the gap between baseline data and the norm (Grade 5 50th percentile  $\approx 32.6$ , Grade 4 50th percentile  $\approx 42.4$ ).

FIGURE 10

GRAPHIC COMPARISON OF TELEMATH STUDENTS' 1977 SPRING CTBS RESULTS VS.  
HISTORICAL AVERAGE (1973-1976) FOR LOWER ACHIEVING SCHOOLS



Objective 4.0 Given one hour per week of computer/videographic instruction, October 1976 - May 1977, TELEMATH target students will on the average, score significantly higher than the control group on the end-of-year CTBS arithmetic computation section (raw scores).

Tables 10 through 13 and Figures 11 through 20 contain data or illustrate data relevant to Objective 4.0. Due to the random assignment of students to TELEMATH and comparison groups, the evaluation of the attainment of the objective is based on posttest scores -- not on difference scores. Since additional insights can be obtained by inspecting the difference scores, they have also been provided in the tables which follow.

Tables 10, 11, 12 and 13 provide pretest and posttest data for TELEMATH and comparison students on the CTBS computation subtests. Grade equivalent (G.E.) values are provided in addition to the raw score data. The right hand columns of each of the tables contains the changes in grade equivalent scores from pretest to posttest for the respective groups. Figures 11 and 12 graphically illustrate the grade equivalent gains (to the nearest month) for individual schools and combined (e.g., *Higher Achieving Schools* and *Lower Achieving Schools*).

Consistent with the criterion-referenced test data provided for Objective 2.0, the TELEMATH groups consistently outperformed the comparison groups. The combined data for all schools indicate a statistically significant advantage in favor of the TELEMATH group. For Grade 4, the raw score difference (41.6 vs. 39.9) was significant at the .10 level. The level of significance for the Grade 5 combined groups' difference was more pronounced (34.2 vs. 32.2,  $p < .05$ ). Hence, both grade levels exceeded the stated criterion level of Objective 4.0.

Data substantiating the conclusions above are in Tables 10 and 12 for Grade 4, and in Tables 11 and 13 for Grade 5. The "Months Gain" information (the column to the extreme right for each table) is displayed in Figures 11 and 12 for Grades 4 and 5, respectively.

For the reader who may be interested in reviewing the standardized test information in more detail, Figure Sets 13-20 have been provided. Figure Sets 13 and 14 contrast Grade 4 TELEMATH and comparison groups' pretest and posttest distributions. Figure Sets 15 and 16 contain comparable data for Grade 5. These distributions illustrate the equivalence of groups on the pretest and the advantage of the TELEMATH group on the posttest. Statistical characteristics (mean, standard deviation, sample size and grade equivalent value)) have been superimposed to simplify the review.

Figure Sets 17 through 20 provide the corresponding information for *Higher Achieving Schools* and *Lower Achieving Schools*, Grades 4 and 5. For the reader who wishes to review school level distributions, Appendix B has been provided.

In summary, regardless if data are reviewed on a school level basis, a combined *Higher Achieving/Lower Achieving school* level basis, or on a total aggregated projectwide basis, TELEMATH groups of students score higher on the CTBS computation subtest than did the comparison groups. On a projectwide basis the differences were statistically significant. ( $p = .077$  for Grade 4, and  $p = .036$  for Grade 5) The performance advantage of the TELEMATH group exceeded the criterion level of Objective 4.0. Hence, the objective was met.

TABLE 10

RAW SCORE AND GRADE EQUIVALENT (GE) STATISTICAL CHARACTERISTICS  
OF 1976-77 COMPREHENSIVE TEST OF BASIC SKILLS TEST RESULTS  
SEPARATED BY SCHOOL  
GRADE 4

SCHOOL		PRETEST		POSTTEST		MONTHS GAIN	
		TELEMATH	COMPARISON	TELEMATH	COMPARISON	TELEMATH	COMPARISON
ENCANTO	N	32	27	32	27	11	6
	Mean	26.3	25.8	40.6	37.0		
	S.D.	11.5	12.5	7.9	11.4		
	G.E.	3.3	3.3	4.4	3.9		
FREESE	N	37	33	37	33	10	7
	Mean	27.6	25.2	40.8	37.4		
	S.D.	11.3	12.4	6.5	8.8		
	G.E.	3.4	3.2	4.4	3.9		
GREEN	N	23	23	23	23	13	7
	Mean	43.5	40.0	46.8	44.4		
	S.D.	5.4	7.9	1.3	7.7		
	G.E.	4.7	4.2	6.0	4.9		
LINDA VISTA	N	37	30	37	30	9	7
	Mean	21.3	23.9	36.7	36.7		
	S.D.	13.5	17.8	12.5	12.2		
	G.E.	3.0	3.2	3.9	3.9		
MARVIN	N	34	36	34	36	10	9
	Mean	35.1	34.9	43.2	41.9		
	S.D.	10.1	11.0	5.3	6.7		
	G.E.	3.7	3.7	4.7	4.6		
SCRIPPS	N	15	15	15	15	14	11
	Mean	38.5	37.9	45.5	44.8		
	S.D.	10.5	7.8	3.5	4.6		
	G.E.	4.1	4.0	5.5	5.1		
COMBINED	N	178	164	178	164	11	7
	Mean	30.5	30.4	41.6	39.9		
	S.D.	13.1	8.3	13.8	9.6		
	G.E.	3.5	3.5	4.6	4.2		

All Grade 4 students were administered the computation subtest of CTBS, Level 1 Form S.

Pretests administered October 11-15, 1976

Posttests administered April 13-25, 1977

Approximately six months instruction between pre and posttesting sessions.

\*Difference is statistically significant ( $p < .10$ )

TABLE 11  
RAW SCORE AND GRADE EQUIVALENT (GE) STATISTICAL CHARACTERISTICS  
OF 1976-77 COMPREHENSIVE TEST OF BASIC SKILLS TEST RESULTS  
SEPARATED BY SCHOOL  
GRADE 5

SCHOOL		PRETEST		POSTTEST		MONTHS GAIN	
		TELEMATH	COMPARISON	TELEMATH	COMPARISON	TELEMATH	COMPARISON
ENCANTO	N	27	23	27	23	8	4
	Mean	24.7	23.9	32.0	** 26.8		
	S.D.	7.1	8.4	6.7	10.0		
	G.E.	4.8	4.6	5.6	5.0		
FREESE	N	39	36	39	36	7	5
	Mean	25.8	23.9	32.0	28.9		
	S.D.	7.9	8.6	8.3	9.4		
	G.E.	4.9	4.7	5.6	5.2		
GREEN	N	33	31	33	31	14	10
	Mean	32.3	30.1	38.5	35.6		
	S.D.	7.9	9.9	6.0	8.6		
	G.E.	4.8	4.9	5.5	5.5		
LINDA VISTA	N	32	29	32	29	7	6
	Mean	25.0	25.9	31.2	31.1		
	S.D.	7.7	10.9	9.8	9.9		
	G.E.	4.8	4.9	5.5	5.5		
MARVIN	N	36	37	36	37	10	10
	Mean	27.9	28.2	35.0	34.5		
	S.D.	9.3	6.9	9.1	8.6		
	G.E.	5.1	5.1	6.1	6.1		
SCRIPPS	N	17	16	17	16	11	6
	Mean	32.3	33.9	37.9	36.9		
	S.D.	9.5	6.8	7.1	8.0		
	G.E.	5.6	5.9	6.7	6.5		
COMBINED	N	184	172	184	172	8	6
	Mean	27.7	27.1	34.2	** 32.2		
	S.D.	8.6	9.1	8.5	9.6		
	G.E.	5.1	5.0	5.9	5.6		

All Grade 5 students were administered the computation subtest of CTBS, Level 2 Form S.

Pretests administered October 11-15, 1976

Posttests administered April 13-29, 1977

Approximately six months instruction between pre and posttesting sessions

\*Difference is statistically significant ( $p < .10$ )

\*\*Difference is statistically significant ( $p < .05$ )

TABLE 12

RAW SCORE AND GRADE EQUIVALENT (GE) STATISTICAL CHARACTERISTICS  
OF 1976-77 COMPREHENSIVE TEST OF BASIC SKILLS TEST RESULTS  
SEPARATED BY HIGHER AND LOWER ACHIEVING SCHOOLS  
GRADE 4

GROUP	PRETEST		POSTTEST		MONTHS GAIN	
	TELEMATH	COMPARISON	TELEMATH	COMPARISON	TELEMATH	COMPARISON
HIGHER ACHIEVING SCHOOLS						
N	72	74	72	74		
Mean	38.5	37.1	44.8	* 43.3		
S.D.	9.6	9.6	4.3	6.7		
G.E.	4.0	3.9	5.1	4.7	11	8
LOWER ACHIEVING SCHOOLS						
N	106	90	106	90		
Mean	25.0	25.0	39.3	37.0		
S.D.	12.3	14.3	9.5	10.7		
G.E.	3.2	3.2	4.1	3.9	9	7
ALL SCHOOLS COMBINED						
N	178	164	178	164		
Mean	30.5	30.4	41.6	* 39.9		
S.D.	13.1	13.8	8.3	9.6		
G.E.	3.5	3.5	4.6	4.2	11	7

All Grade 4 students were administered the computation subtest of CTBS, Level 1 Form S.

Pretests administered October 11-15, 1976

Posttests administered April 13-29, 1977

Approximately six months instruction between pre and posttesting sessions.

\*Difference is statistically significant ( $p < .10$ )

TABLE 13  
RAW SCORE AND GRADE EQUIVALENT (GE) STATISTICAL CHARACTERISTICS  
OF 1976-77 COMPREHENSIVE TEST OF BASIC SKILLS TEST RESULTS  
SEPARATED BY HIGHER AND LOWER ACHIEVING SCHOOLS  
GRADE 5

GROUP	PRETEST		POSTTEST		MONTHS GAIN	
	TELEMATH	COMPARISON	TELEMATH	COMPARISON	TELEMATH	COMPARISON
HIGHER ACHIEVING SCHOOLS						
N	86	84	86	84		
Mean	30.5	30.0	36.9	35.4		
S.D.	9.0	8.3	7.8	8.4		
G.E.	5.3	5.3	6.5	6.1	12	8
LOWER ACHIEVING SCHOOLS						
N	98	88	98	88		
Mean	25.3	24.3	31.7	29.1		
S.D.	7.5	9.1	8.3	9.7		
G.E.	4.8	4.7	5.6	5.2	8	5
ALL SCHOOLS COMBINED						
N	184	172	184	172		
Mean	27.7	27.1	34.2	32.2		
S.D.	8.6	9.1	8.5	9.6		
G.E.	5.1	5.0	5.9	5.6	8	6

All Grade 5 students were administered the computation subtest of CTBS, Level 2 Form S.

Pretests administered October 11-15, 1976

Posttests administered April 13-29, 1977

Approximately six months instruction between pre and posttesting sessions.

\*Difference is statistically significant ( $p < .10$ )

\*\*Difference is statistically significant ( $p < .05$ )

FIGURE 11

MONTHS GAIN FROM PRETEST TO POSTTEST ON THE CTBS  
SEPARATED BY SCHOOLS - GRADE 4

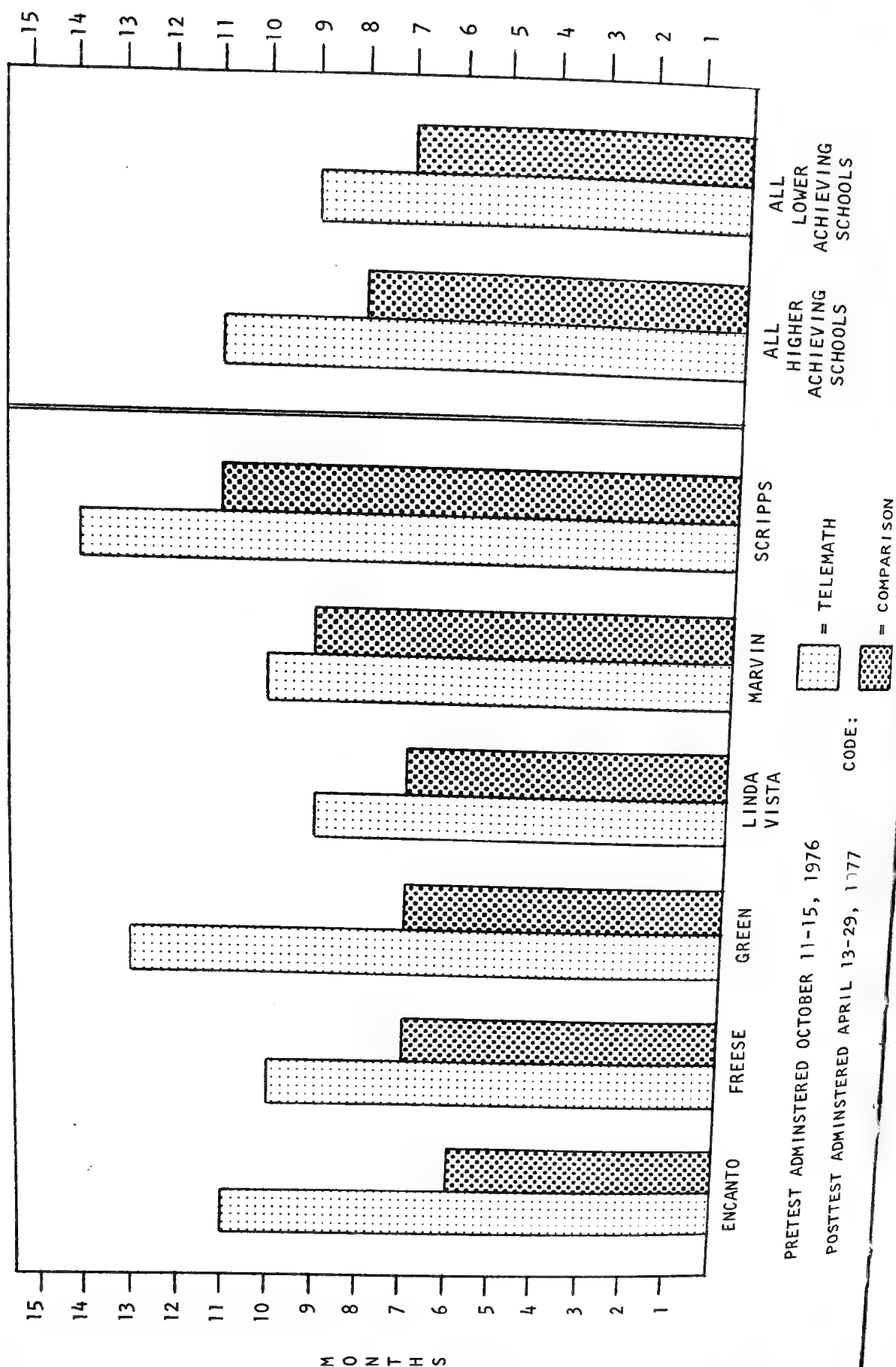


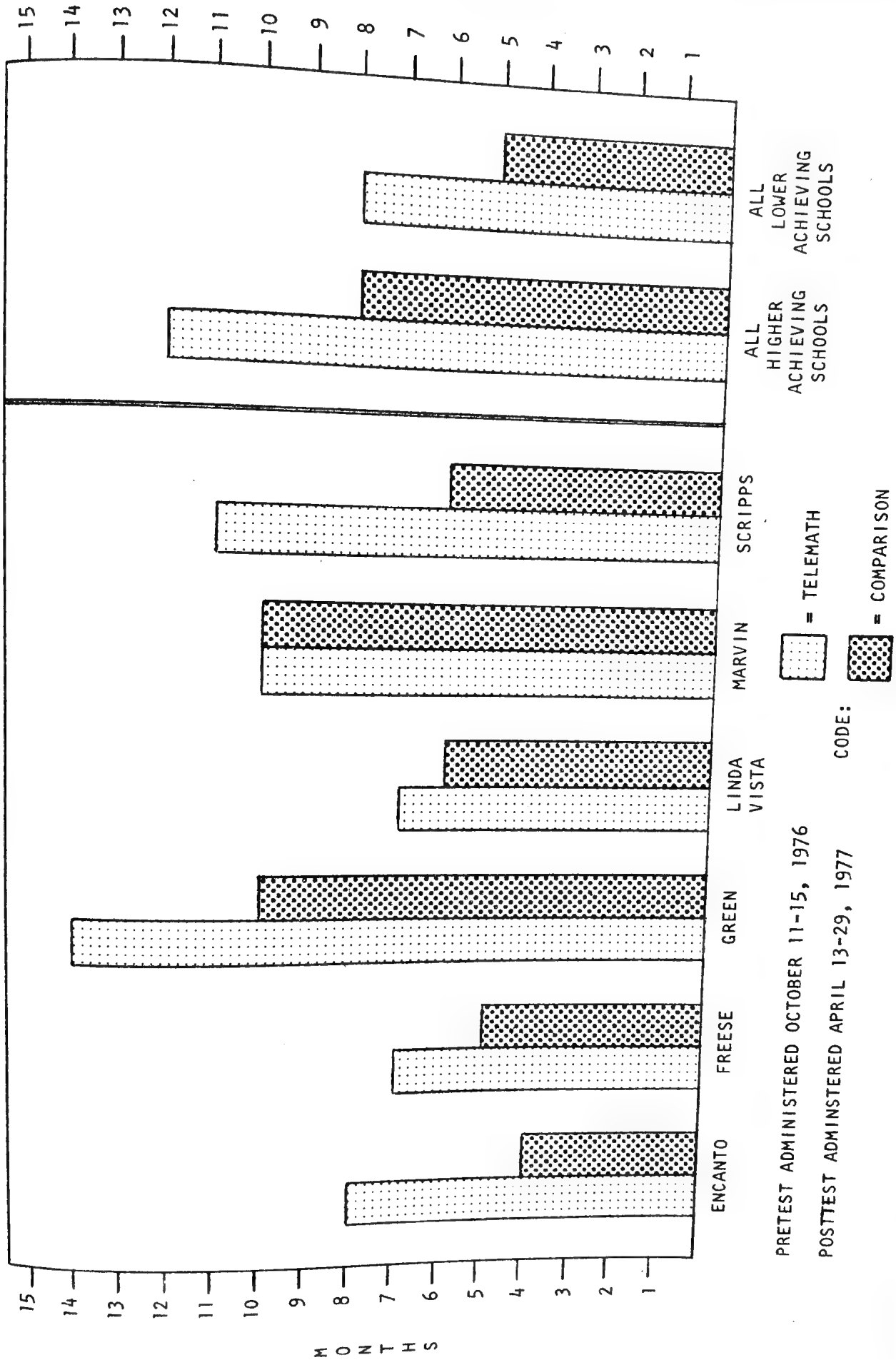
FIGURE 12

MONTHS GAIN FROM PRETEST TO POSTTEST ON THE CTBS  
SEPARATED BY SCHOOLS - GRADE 5



FIGURE 12

MONTHS GAIN FROM PRETEST TO POSTTEST ON THE CTBS  
SEPARATED BY SCHOOLS - GRADE 5



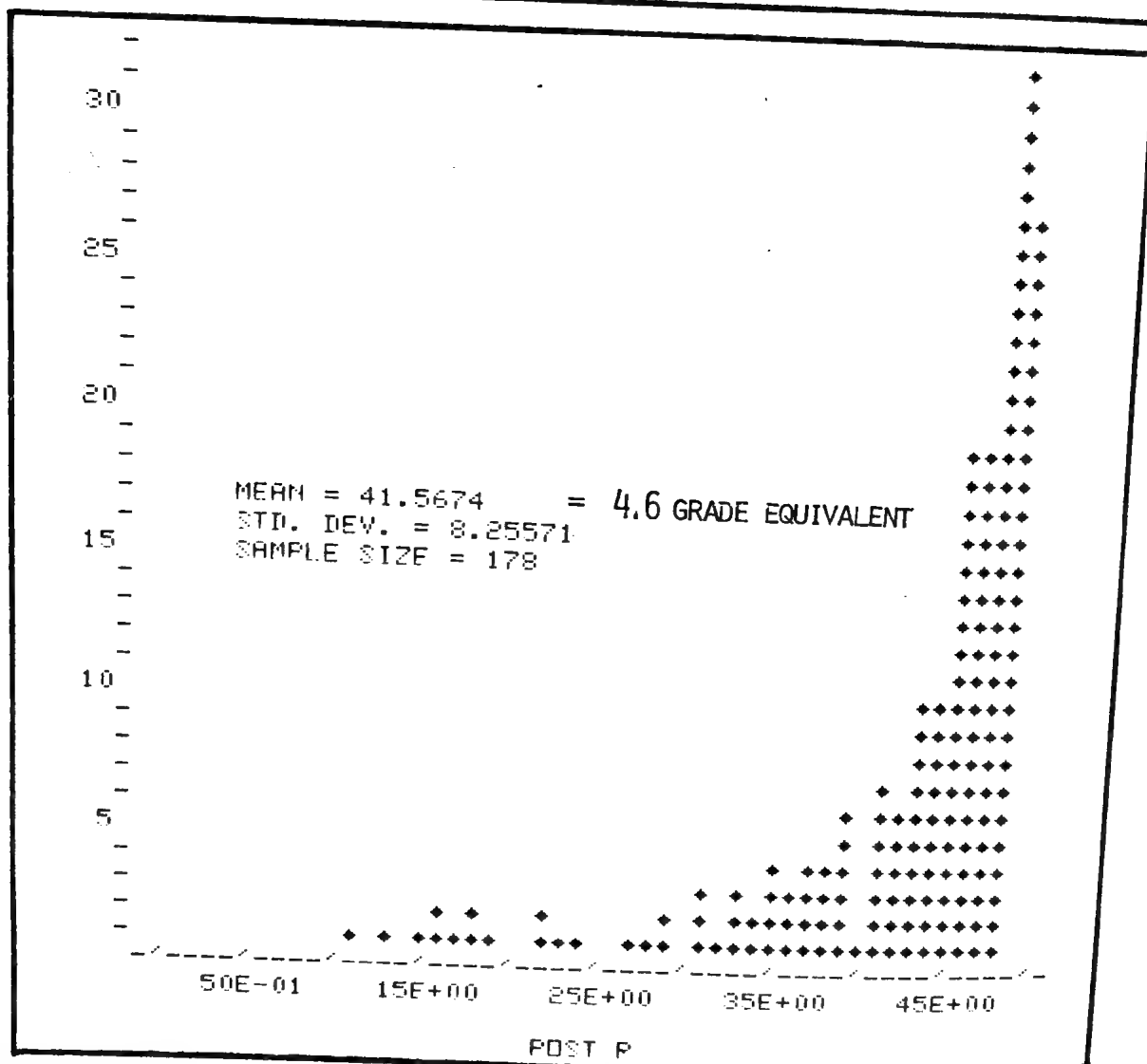
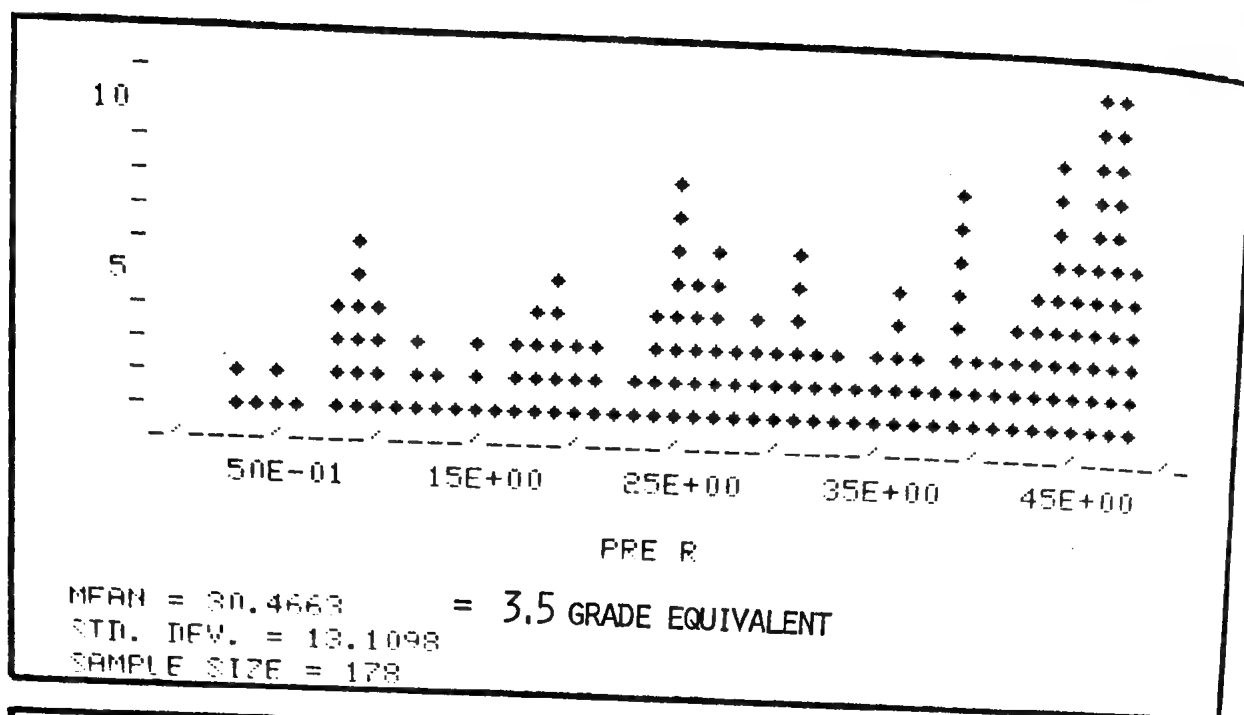


FIGURE SET 13  
 CTBS PRE-POST RESULTS FOR ALL TELEMATH STUDENTS  
 GRADE 4

10

5

50E-01

15E+00

25E+00

35E+00

45E+00

PRE R

MEAN = 30.4207

= 3.5 GRADE EQUIVALENT

STD. DEV. = 13.7832

SAMPLE SIZE = 164

20

15

10

5

50E-01

15E+00

25E+00

35E+00

45E+00

POST R

MEAN = 39.8598

= 4.2 GRADE EQUIVALENT

STD. DEV. = 9.63245

SAMPLE SIZE = 164

FIGURE SET 14

CTBS PRE-POST RESULTS FOR ALL COMPARISON STUDENTS  
GRADE 4

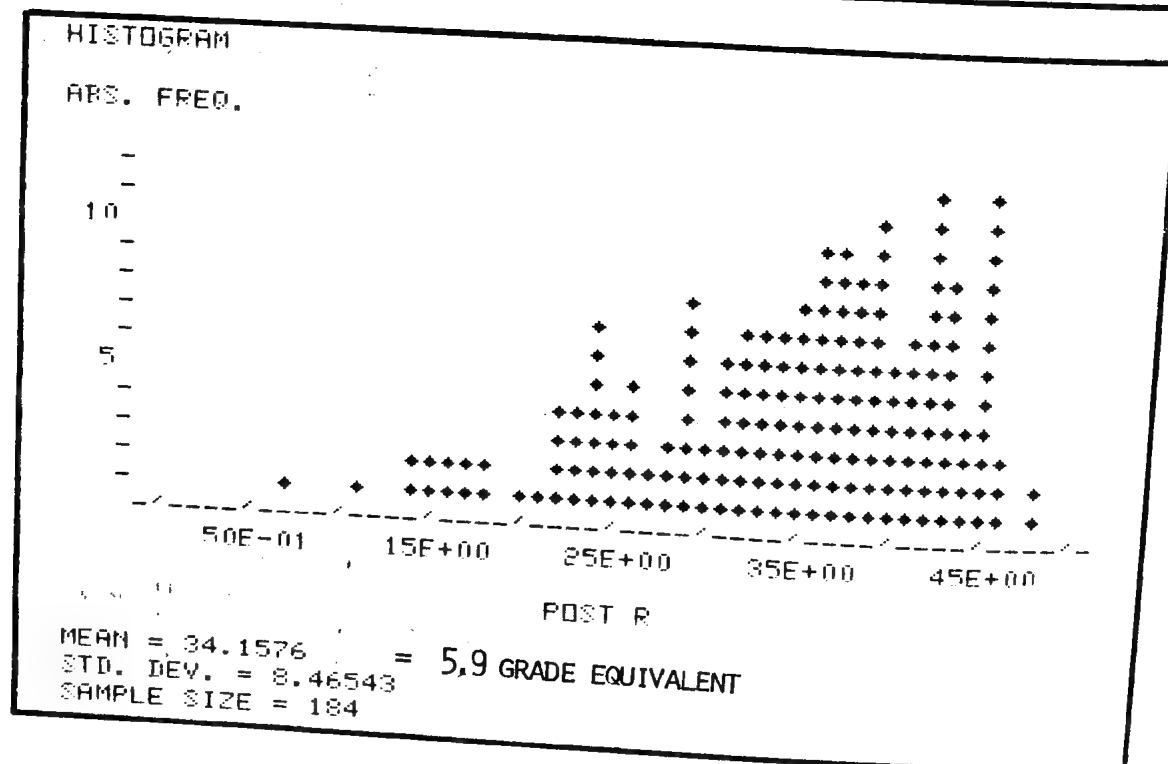
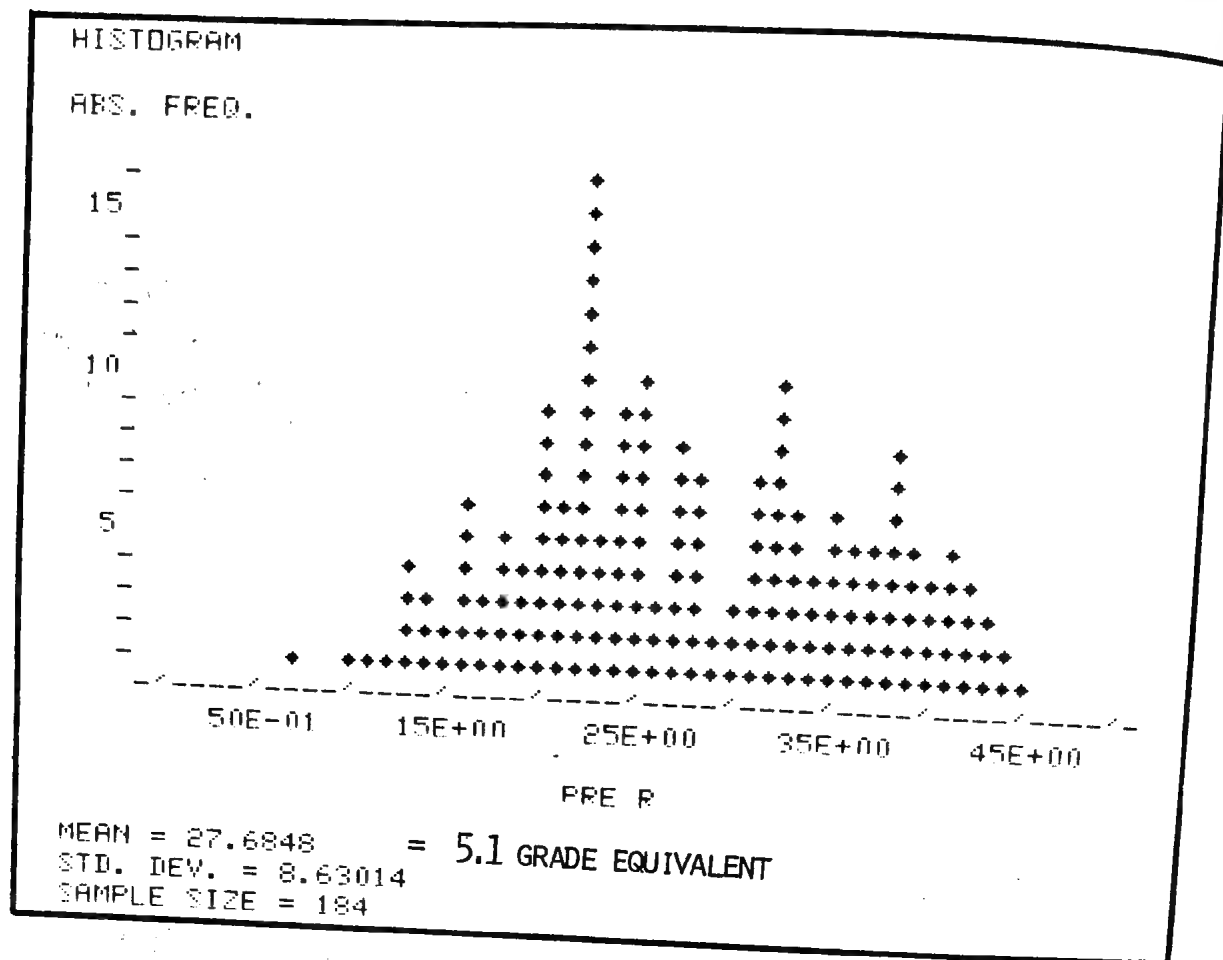


FIGURE SET 15

CTBS PRE-POST RESULTS FOR ALL TELEMATH STUDENTS  
 GRADE 5

# HISTOGRAM

ABS. FREQ.

10

-

-

-

-

5

-

-

-

-

-

50E-01

15E+00

25E+00

35E+00

45E+00

PRE R

MEAN = 27.0872

= 5.0 GRADE EQUIVALENT

STD. DEV. = 9.14078

SAMPLE SIZE = 172

ABS. FREQ.

-

-

-

-

10

-

-

-

5

-

-

-

-

50E-01

15E+00

25E+00

35E+00

45E+00

POST R

MEAN = 32.157

= 5.6 GRADE EQUIVALENT

STD. DEV. = 9.62597

SAMPLE SIZE = 172

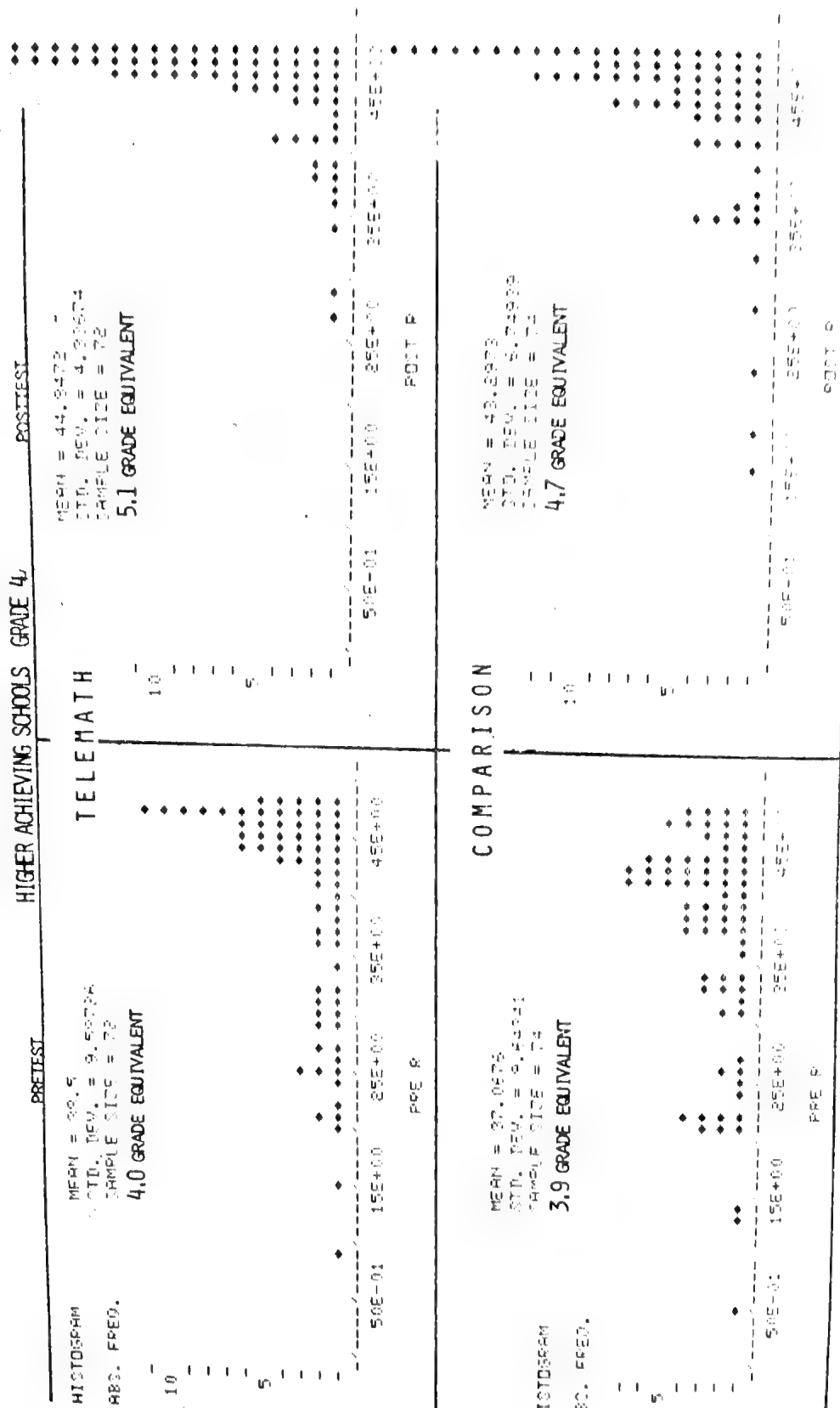
FIGURE SET 16

CTBS PRE-POST RESULTS FOR ALL COMPARISON STUDENTS  
GRADE 5

# FIGURE SET 17

## PROJECT TELEMATH

### 1976-1977 TEST DATA



# FIGURE SET 18

## PROJECT TELEMATH

FIGURE SET 18

PROJECT TELEMATH

1976-1977 TEST DATA

HIGHER ACHIEVING SCHOOLS GRADE 5

POSTTEST

PRETEST

TELEMATH

HISTOGRAM

ABS. FREQ.

5

50E-01 15E+00 25E+00 35E+00 45E+00

PRE R

MEAN = 30.4535 = 5.3 GRADE EQUIVALENT

STD. DEV. = 8.99759

SAMPLE SIZE = 86

MEAN = 36.9302 = 6.5 GRADE EQUIVALENT

STD. DEV. = 7.75476

SAMPLE SIZE = 86

HISTOGRAM

ABS. FREQ.

5

50E-01 15E+00 25E+00 35E+00 45E+00

PRE R

MEAN = 29.9881 = 5.3 GRADE EQUIVALENT

STD. DEV. = 8.29501

SAMPLE SIZE = 84

COMPARISON

POST R

MEAN = 35.369 = 6.1 GRADE EQUIVALENT

STD. DEV. = 8.41367

SAMPLE SIZE = 84

FIGURE SET 19

PROJECT TELEMATH

1976-1977 TEST DATA

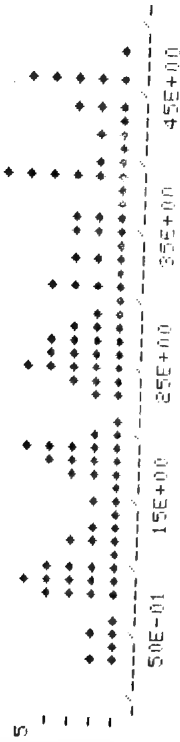
LOWER ACHIEVING SCHOOLS GRADE 4

PRETEST

POSTTEST

HISTOGRAM

ABS. FREQ.



PRE P

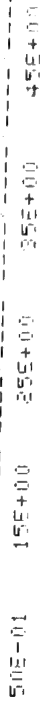
MEAN = 25.0094  
STD. DEV. = 12.3793  
SAMPLE SIZE = 106

MEAN = 29.3395  
STD. DEV. = 9.42567  
SAMPLE SIZE = 106

POST P

TELEMATH

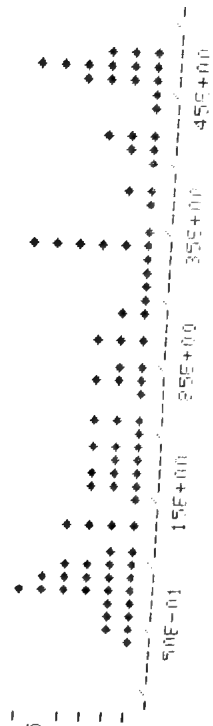
5



COMPARISON

HISTOGRAM

ABS. FREQ.



PRE P

MEAN = 24.9559  
STD. DEV. = 14.3079  
SAMPLE SIZE = 90

MEAN = 37.0078  
STD. DEV. = 10.709  
SAMPLE SIZE = 90

POST P

MEAN = 37.0078  
STD. DEV. = 10.709  
SAMPLE SIZE = 90

FIGURE SET 20

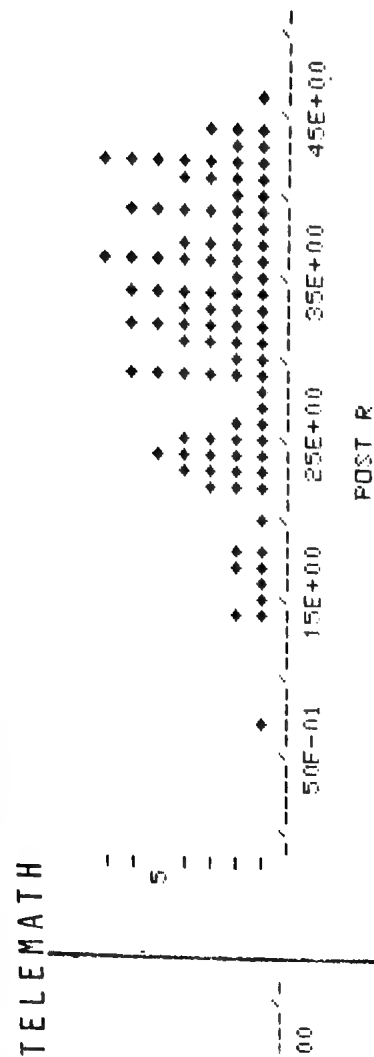
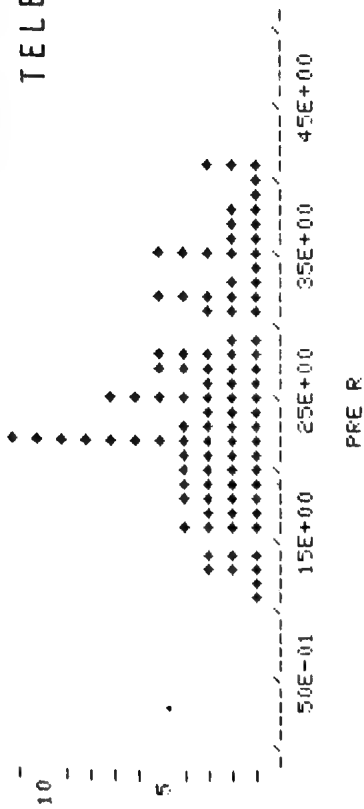


PROJECT TELEMATH

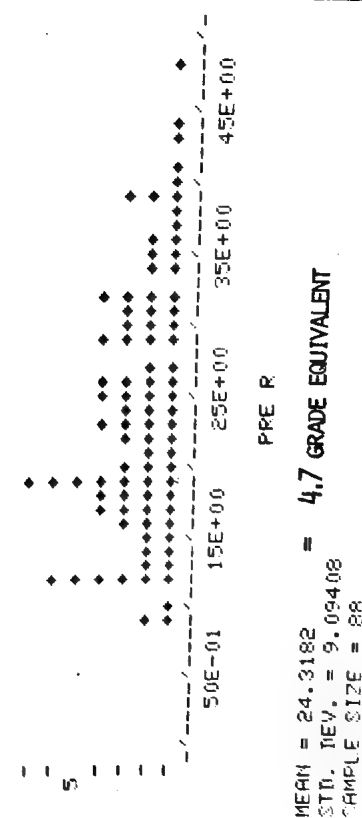
1976-1977 TEST DATA

LOWER ACHIEVING SCHOOLS GRADE 5

PRETEST POSTTEST



COMPARISON



## Staff Development Component

Objective 5.0 Given one pre-service workshop, mathematics laboratory teachers, (and instructional aides, if assigned) in target schools will, by October 1, 1976, demonstrate functional proficiency in computer/videographic system operation.

Two workshops to explain the proper operation of the TELEMATH equipment were held in late September. Key teachers from Encanto, Freese, Green and Marvin attended a September 29 session at Green Elementary School. Teachers from Linda Vista, Scripps and the two non-public schools received their inservice training at Linda Vista Elementary School on October 1. After being instructed in the correct operation and storage of equipment, each key teacher participated in a performance test to demonstrate their proficiency in the operation of the equipment. The checklist utilized may be found in Appendix D.

If a person could not demonstrate the proper operation of some phase of programming, they were provided additional practice experiences. By the end of each session, all participants had demonstrated the desired competencies. Objective 5.0 was met.

Objective 6.0 Given one pre-service and a minimum of three inservice workshops, mathematics laboratory teachers and instructional aides in target schools will, by February 1, 1977, demonstrate knowledge of each drill activity program format and its application to reinforce specific computational objective.

Beyond the pre-implementation workshop and meetings, six workshops/meetings occurred. Additional TELEMATH activities (beyond those available October 1) were provided to the key teachers at a December 9 meeting. During his midyear visit to each site the evaluator observed each TELEMATH system in operation. TELEMATH aides/key teachers demonstrated knowledge and proficiency of the drill activities at that time. Due to unreliable performance of the input device, only those drill activities which were scheduled for that time interval were observed. During his third quarter visit, the evaluator confirmed his midyear observations on a wider range of drill activities. Objective 6.0 was attained.

## Curriculum Development Component

Objective 7.0 By September 13, 1976, 75% of district level 4-6 mathematics objectives relating to computation will have reinforcing drill activities programmed for delivery to pupils via the computer/videographic system.

Objective 8.0 By February 1, 1977, 100% of district level 4-6 mathematics objectives relating to computation will have reinforcing drill activities programmed for delivery to pupils via the computer/videographic system.

Curriculum writing activities occurred during the summer of 1976. TELEMATH activities were developed to provide at least one reinforcement drill activity for better than 85% of the District's math objectives for Grades 4 through 6. Computer programmers from Gremlin Industries had the responsibility to transform the activities which were written by the TELEMATH writing team into TELEMATH programs for the system. Due to technical difficulties with the system's input device, and other competing priorities, the programs were not available as of September 13 (as specified in Objective 7.0). The delay was minimal and the majority of activities were programmed and were available to schools by mid October. On December 9, additional programs were provided to of math objectives for Grades 4 through 6 was covered by at least one activity. Also, Grade 3 reinforcement activities were written and programmed. These activities were also made available to schools (for low achieving third grade students).

In summary, the criteria levels of both Objective 7.0 and Objective 8.0 were attained, although Objective 7.0 was slightly behind schedule.

#### Evaluation/Research Component

Objective 9.0 *By June 30, 1977 the evaluator will have completed all periodic and quarterly checks as required by the "Evaluation Specification Activities" delineated for each project component and will furnish the project director with a statistical and analytical recap of evaluation findings as specified in "Evaluation Specifications for Objectives," 1.0, 2.0, 3.0 and 4.0.*

The attainment of this objective is evidenced by the existence of this report; specifically the State Reporting forms EV 77.02(A) and EV 77.02(B).

#### Management Component

Objective 10.0 *By October 11, 1976, all planning, site selection, assignment of personnel, and receipt of hardware and curricular materials for the implementation of the project will be completed.*

Other than a delay in assigning one TELEMATH teacher assistant (a District central office mix-up), each of the management tasks explicated in Objective 10.0 occurred by October 11. The cooperative participation by key teachers at each site, the "over-time" work contributed by Gremlin Industries, and the unselfish contribution of time and energy by the project coordinator, Vance Mills, are to be commended. The grass roots involvement of school level people from the inception of the project definitely contributed to the smooth implementation of the project during its initial year of operation.

## FINDINGS/CONCLUSIONS

### Instructional Component

#### Findings

Objective 1.0 *Given one hour per week of computer/videographic instruction, October 1976 - May 1977, TELEMATH target students will master 80% of the computation objectives in which they receive instruction.*

The aggregated data for the six TELEMATH schools indicated that Grade 4 students mastered 81.4% of the objective in which they received instruction. The corresponding value for Grade 5 was 80.4%. Hence, the criterion level of 80% was attained by both grade levels.

Objective 2.0 *Given one hour per week of computer/videographic instruction, October 1976 - May 1977, TELEMATH target students will score significantly higher than the control group on an end-of-year post-test.*

On criterion-referenced survey tests administered to TELEMATH and comparison students, the difference in mean scores at both Grades 4 and 5 favor the TELEMATH students. If one were to pool the data across grade levels, the difference in favor of the TELEMATH group is statistically significant ( $p < .02$ , using a two tailed ★ - test). Inspection of mean scores of individual school data and data aggregated for *Higher* and *Lower Achieving Schools* illustrates a consistent advantage in favor of the TELEMATH groups.

Objective 3.0 *Given one hour per week of computer/videographic instruction October 1976 - May - 1977:*

- a. *TELEMATH target students in above-average\* schools will, on the average, score at or above their highest mean score of the preceding three years (raw scores) as measured by the CTBS arithmetic computation section.*
- b. *TELEMATH target students in below-average\*\* schools will, on the average, reduce the gap between the national norm and the average of their preceding three years by one-third as measured by the CTBS arithmetic computation section.*

Objectives 3.0a and 3.0b were both met. TELEMATH students' performance on CTBS Arithmetic Computation Subtests consistently met or exceeded the standards explicated within the objectives. *Higher Achieving Schools* averaged near the 65th percentile for both grade levels. *Lower Achieving Schools* reduced the gap between the national norm and their historical performance by greater than one-half -- with two schools approaching the national norm (48th percentile performances).

\*School median above the 50th percentile.

\*\*School median below the 50th percentile.

Objective 4.0 Given one hour per week of computer/videographic instruction, October 1976 - May 1977, TELEMATH target students will on the average, score significantly higher than the control group on the end-of-year CTBS arithmetic computation section (raw scores).

Consistent with the criterion-referenced test data provided for Objective 2.0, the TELEMATH groups consistently outperformed the comparison groups. The combined data for all schools indicate a statistically significant advantage in favor of the TELEMATH group. For Grade 4, the raw score difference (41.6 vs. 39.9) was significant at the .10 level. The level of significance for the Grade 5 combined groups' difference was more pronounced (34.2 vs. 32.2,  $p < .05$ ).

### Conclusions

The consistency of results in Objectives 1.0 through 4.0, plus the levels of statistical significance in Objective 2.0 and Objective 4.0, unequivocally indicate a treatment effect in favor of the TELEMATH population. The random assignment of students to TELEMATH and comparison groups within classes supports the contention that the mean score differences are a result of the TELEMATH project -- not an "outstanding teacher" effect. The TELEMATH instructional strategy appears equally effective for both *Higher* and *Lower Achieving Schools*.

### Staff Development Component

#### Findings

Objective 5.0 Given one pre-service workshop, mathematics laboratory teachers, (and instructional aides, if assigned) in target schools will, by October 1, 1976, demonstrate functional proficiency in computer/videographic system operation.

After being instructed in the correct operation and storage of TELEMATH equipment, each key teacher participated in a performance test to demonstrate his/her proficiency in the operation of the equipment. By the end of the training workshop, each key teacher had demonstrated the desired competencies. Objective 5.0 was met.

Objective 6.0 Given one pre-service and a minimum of three inservice workshops, mathematics laboratory teachers and instructional aides in target schools will, by February 1, 1977, demonstrate knowledge of each drill activity program format and its application to reinforce specific computation objective.

During midyear and third quarter site visits, the project evaluator observed each TELEMATH system in operation. TELEMATH aides/key teachers demonstrated knowledge and proficiency of the reinforcement drill activities at those times.

## Conclusions

The inservice workshops and meetings provided the key participants the necessary skills to implement the TELEMATH project as planned.

## Curriculum Development Component

### Findings

Objective 7.0 By September 13, 1976, 75% of district level 4-6 mathematics objectives relating to computation will have reinforcing drill activities programmed for delivery to pupils via the computer/videographic system.

Objective 8.0 By February 1, 1977, 100% of district level 4-6 mathematics objectives relating to computation will have reinforcing drill activities programmed for delivery to pupils via the computer/videographic system.

The criteria levels of both Objective 7.0 and 8.0 were attained. Start-up problems delayed the delivery of some instructional activities in September, but the time delay and impact were minor.

### Conclusions

The reinforcement drill activities needed for Project TELEMATH were written and converted into computer programs in the summer and fall of 1976. Sufficient instructional activities were available to operate the project's strategy.

## Evaluation/Research Component

### Findings

Objective 9.0 By June 30, 1977 the evaluator will have completed all periodic and quarterly checks as required by the "Evaluation Specification Activities" delineated for each project component and will furnish the project director with a statistical and analytical recap of evaluation findings as specified in "Evaluation Specifications for Objectives," 1.0, 2.0, 3.0 and 4.0.

The attainment of this objective is evidenced by the existence of this report; specifically the State Department Reporting Forms EV 77.02(A) and EV 77.02(B).

### Conclusion

The project was evaluated as planned.

## Management Component

### Findings

Objective 10.0 By October 11, 1976, all planning, site selection, assignment of personnel, and receipt of hardware and curricular materials for the implementation of the project will be completed.

Other than a delay in assigning one TELEMATH teacher assistant (a District central office mix-up), each of the management tasks explicated in the Objective above occurred by October 11.

### Conclusions

The TELEMATH project was managed in a conscientious and competent fashion.

### UNANTICIPATED OUTCOMES

Teachers, aides and principals at the TELEMATH schools reported occurrences and circumstances which had not been anticipated. On the positive side, comments were made indicating that some participating TELEMATH students had demonstrated improvement in: (1) social relationships and interactions with their peers, (2) a sense of responsibility, (3) self esteem, confidence and self-motivation, and (4) attitude toward math in general.

The instances reported which would be classified as being negative related to problems associated with the inconvenience of students being pulled-out of classrooms in order to participate in the program. Also, due to the competitive nature of many of the TELEMATH reinforcement activities, some instances were reported of students being frustrated or disillusioned if they consistently "lost" while participating in an activity.

The vast majority of the comments regarding unanticipated outcomes were positive. Characteristic of the comments of teachers, aides and site administrators are the following.

" ... The reputation of TELEMATH as a fun experience spread through the school ... The students were never reminded to go to TELEMATH. They remembered because they enjoyed going ... They reminded me ... The students were expected to assume responsibility for assignments we did when they were out. If special help were needed, they were to take the initiative to get the help on free time."

" ... children who had little sense of self-confidence in the beginning, later developed more self-esteem, as their mathematical abilities increased in speed and accuracy ... Children never had to be reminded when they were scheduled for TELEMATH."

## RECOMMENDATIONS

1. The continuation of Project TELEMATH, with only minor modifications for the 1977-78 school year, is supported by the evaluation data contained in this report. The expansion of the project as originally planned (to include grades 3 through 8 and mathematics strands beyond computation) is appropriate.
2. A more extensive orientation should be provided to the classroom teachers who release their students to participate in the pull-out program. Perhaps a video tape could be prepared also which would discuss the teacher's role and illustrate the project in operation with students working on a TELEMATH system.
3. Before project implementation for the 1977-78 school year, inservice training should be provided to the teacher assistants (TA's) who are employed by the project. A sharing of useful techniques by the experienced TELEMATH TA's would be beneficial to the new aides.
4. In non-compensatory education schools, TELEMATH TA's should maintain the individual student profiles of mastery testing using District recordkeeping forms. The exchange of information between TELEMATH TA's and classroom teachers relative to individual student needs should continue or improve. Some mastery testing administered by TELEMATH TA's may be desirable.
5. If computer memory space permits, an effort to expand some TELEMATH learning activities seems appropriate. Some of the reinforcement drill activities could be supplemented with "mini-lessons" at their outset. The mini-lessons could (1) illustrate sample operations of some of the activities, or (2) teach or review the mathematical algorithm or concept which is to be reinforced.
6. A more formal agreement should be arranged between Gremlin Industries and the San Diego Unified School District. The present "gentleman's agreement" leaves project TELEMATH in a vulnerable position, if Gremlin Industries' priorities should change over the next two years. A time schedule and a list of the specific instructional activities which are to be programmed should be explicated in writing and agreed upon by both parties.
7. A conscientious effort should continue during the formation of the small homogeneous groups of students for TELEMATH instruction. TELEMATH aides and key teachers need to be very sensitive to potential instances in which a student might be grouped with other students who are much more capable. In such instance, the TELEMATH experience might become ego-deflating for that child.



STATE DEPARTMENT OF EDUCATION  
REPORT FORMS  
1976-1977

RETURN FOUR COPIES BY JUNE 30, 1977 TO:  
California State Department of Education  
Office of Program Evaluation and Research  
ESEA, Title IV, Part C  
721 Capitol Mall - Fourth Floor  
Sacramento, California 95814

6	0
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6	1	9	6	4
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County-District Code  
Use the code number  
specified in the California  
Public School Directory, 1976.

END OF PROJECT YEAR EVALUATION REPORT  
FOR ESEA, TITLE IV, PART C PROJECTS  
1976-77

PROJECT NUMBER: 2390

PROJECT TITLE: Project TELEMATH

AGENCY OPERATING THE PROJECT:

San Diego Unified School District  
Legal name of local educational agency (LEA)

4100 Normal Street  
Address

San Diego  
City

San Diego  
County

40, 41, 42  
Congressional District

(714) 293-8500  
Telephone Number

PERSON TO CONTACT REGARDING THIS REPORT:

Dr. Donald Hankins  
Name

4100 Normal Street  
Address

(714) 293-8212  
Telephone Number

PROJECT EVALUATOR (Within district ☒ or  
Outside district ☐):

Grant Behnke  
Name

4100 Normal Street,  
Address

(714) 293-8506  
Telephone Number

CERTIFICATION

I hereby certify that to the best of my knowledge and belief the information contained  
in this project report is correct and complete.

*Ralph Patrick*  
Ralph Patrick, Deputy Superintendent, Operations

*Donald Hankins*  
Signature of project director

*Grant Behnke*  
Signature of evaluator

6-24-77  
Date

6-27-77  
Date

6-27-77  
Date

PROJECT NUMBER 2 3 9 0

## EXTENT OF ADAPTION

Have other school districts been motivated to improve their curriculum by adapting some of the program improvements emphasized in your project?

☐ Yes ☒ No

If the answer is YES, list the school districts by name and address:

- |           |           |
|-----------|-----------|
| 1. _____  | 11. _____ |
| _____     | _____     |
| 2. _____  | 12. _____ |
| _____     | _____     |
| 3. _____  | 13. _____ |
| _____     | _____     |
| 4. _____  | 14. _____ |
| _____     | _____     |
| 5. _____  | 15. _____ |
| _____     | _____     |
| 6. _____  | 16. _____ |
| _____     | _____     |
| 7. _____  | 17. _____ |
| _____     | _____     |
| 8. _____  | 18. _____ |
| _____     | _____     |
| 9. _____  | 19. _____ |
| _____     | _____     |
| 10. _____ | 20. _____ |
| _____     | _____     |

Type of Product(s) Developed (1)	Number of Products* (2)	Rank** (3)	Type of Product(s) Developed (4)	Number of Products* (5)	Rank** (6)
1. Student Guides	—	—	15. Kits	—	—
2. Teacher Guides	1	2	16. Models	—	—
3. Handbook of materials, techniques and procedures	—	—	17. Microcards	—	—
4. Monograph	—	—	18. Microfilm	—	—
5. Bibliography	—	—	19. Maps	—	—
6. Questionnaires locally developed	3	3	20. Pictures	—	—
7. Evaluation tests	—	—	21. Posters	—	—
8. Audio tape cassettes	—	—	22. Records	—	—
9. Brochures, newsletters and information sheets	—	—	23. Set	—	—
10. 16 mm Films	—	—	24. Slides/tape	—	—
11. 8 mm Films	—	—	25. Viewmasters	—	—
12. Filmstrips	—	—	26. Video Tape	—	—
13. Instructional workbooks, materials	—	—	27. Other Reinforcement	56	1
14. Tests locally developed	—	—	28. Drill Activities	—	—
	—	—	29. (computer programs)	—	—
	—	—	30.	—	—

\*If the project produced any educational products, find the appropriate types (see Columns 1 and 4) and insert the number of products in Columns 2 and 5.

\*\*Rank order their contribution to the project; i.e., insert a (1) for the product considered most important, a (2) for the product deemed next in importance, etc.

Project Number 2 3 9 0

## TITLE IV, PART C AREAS OF INFLUENCE\*

Please rank the impact of this ESFA, Title IV, Part C project on your local educational agency (LEA). Leave blank any items that do not apply and add other categories as desired. Rank items 1 to 7 (or more if you have made additions to the list). Give examples only on items ranked 1 and 2. Number 1 indicates that throughout the LEA the impact was greatest in developing skill areas or attitudinal changes in the area so designated.

Rank**	Areas of Influence	Examples (Use this space to give examples of items ranked 1 and 2)
1. _____	<u>Special project development</u> Needs assessment, goal setting, planning (writing), implementation, etc.	1.) Instructional activities developed for computerized videographic display on a standard television screen. These activities provide individualized instruction in mathematics computational skill
2. <u>3</u>	<u>Staff training</u> Resulting in added skills or attitudinal change	
3. _____	<u>Parental involvement in the schools</u> Bringing parents into more direct contact with school activities.	
4. _____	<u>Community involvement</u> Instances of community participation other than parents	2.) Quarterly reports by the evaluator helped give up-to-date reports of individual student as well as how individual schools and the project as a whole was progressing. Using the quarterly reports in the decision making process is most important.
5. <u>2</u>	<u>Evaluation competencies and use of evaluation information</u>	
6. <u>1</u>	<u>Products developed</u> Have the products developed by the project; i.e., <u>Materials</u> : curriculum guides, AV materials, etc. <u>Methods</u> : individualized instructions, use of aides, etc., been put to use beyond project requirement? List under examples.	
7. <u>4</u>	<u>Management and accounting procedures</u> Have the project activities resulted in increased accountability in other learning situations? List under examples.	

\*As a result of participation in ESFA, Title IV, Part C endeavors.

\*\*Information derived with indicator areas of greatest impact - Number 1 most impact; Number 7 (or below) least impact.

# EXTENT OF PARTICIPATION IN PROJECT STAFF DEVELOPMENT ACTIVITIES

Complete the Table as requested.

Type of Staff Members	Number of Sessions or Meetings during the Project Year	Average Number Participating per Session
Teachers	9	8
Aides	2	7
Others such as counselors, administrators, etc.	1	6

## PLANS FOR CONTINUING THE PROJECT AFTER FUNDING (ESEA, TITLE IV, PART C) TERMINATES (Only Required of Terminating Projects)

Unique Features Developed by the Project (1)	Anticipated Problems (2)	Ways to Verify Continuation (3)	State Use Only (4)
D.N.A.			

In completing this table, the teachers and principals in the project schools should be consulted.

1. In Column 1, describe the unique features of the project which differentiate it from other similar projects. This includes plans you have for continuing the project next year. In Column 2, describe any problems you anticipate associated with continuing the unique features of the project. In Column 3, describe any ways that could be used in the future to verify the degree of continuation that actually occurred. The purpose of Column 4 is to provide help for follow-up study.

PROJECT  
NUMBER 2 3 9 0NON-STANDARDIZED MEASUREMENT RESULTS  
Form EV 77.01 (A)

Check the appropriate box.  
Duplicate the page as needed  
and report separately by  
measurement area for all  
project schools combined, and  
all comparison schools combined.

PROJECT SCHOOLS DATA ☒COMPARISON SCHOOLS DATA ☐

Check the appropriate box  
reporting separately by  
Area of Measurement

READING ☐

LANGUAGE DEVELOPMENT ☐

MATHEMATICS ☒

OTHER ACADEMIC ( ) ☐

NON-ACADEMIC (i.e., affective) ☐

(Report all measures NOT covered by  
Form EV 77.11 (B))

Grade level (1)	Pretest code EV 77.11 (A)* (2)	Post-test code EV 77.11 (A)* (3)	Date of pretest (4)	Date of post-test (5)	Number of students both pre- and post- tested (6)	Pretest Scores to one decimal place		Post-test Scores to one decimal place		Difference (Col. 9 minus Col. 7) (11)	Measure and type of Score** (12)	State Use Only (13)
						mean (7)	standard deviation (8)	mean (9)	standard deviation (10)			
Pre												
K												
1												
2												
3												
4	+	6000	+	5/77	180	+	+	20.8	7.6	+	RAW	
5	+	6001	+	5/77	182	+	+	21.7	9.0	+	RAW	
6												
7												
8												
9												
10												
11												
12												

\*Use the test list (EV 77.11 (A)); insert an asterisk if a subtest is used, and give its name.

\*\*Indicate the type of score: CRT for criterion referenced tests, raw for raw scores, freq. for frequency count, etc.

+ The project used a randomized posttest-only design for the criterion-referenced objective.

Check the appropriate box

PROJECT  
NON-SE 2 3 9 0

Check the appropriate box.  
Duplicate the page as needed  
and report separately by  
measurement area for all  
project schools combined, and  
all comparison schools combined.

PROJECT SCHOOLS DATA ☐COMPARISON SCHOOLS DATA ☒NON-STANDARDIZED MEASUREMENT RESULTS  
Form EV 77.01 (A)(Report all measures NOT covered by  
Form EV 77.11 (B))

Check the appropriate box  
reporting separately by  
Area of Measurement

READING ☐LANGUAGE DEVELOPMENT ☐MATHEMATICS ☒OTHER ACADEMIC ( ) ☐NON-ACADEMIC (i.e., effective) ☐

Grade level (1)	Pretest code EV 77.11 (A)* (2)	Post-test code EV 77.11 (A)* (3)	Date of pretest (4)	Date of post-test (5)	Number of students both pre-tested and post-tested (6)	Pretest Scores to one decimal place		Post-test Scores to one decimal place		Difference (Col. 9 minus Col. 7) (11)	Measure and type of Score** (12)	State Use Only (13)
						mean (7)	standard deviation (8)	mean (9)	standard deviation (10)			
Pre												
K												
1												
2												
3												
4	+	6000	+	5/77	163	+	+	19.7	8.4	+	RAW	
5	+	6001	+	5/77	169	+	+	19.7	9.1	+	RAW	
6												
7												
8												
9												
10												
11												
12												

\*Use the test list (EV 77.11 (A)); insert an asterisk if a subtest is used, and give its name.  
\*\*Indicate the type of score: CRT for criterion referenced tests, raw for raw scores, freq. for frequency count, etc.

+ The project used a randomized posttest-only design for the criterion-referenced EV 77.01 (A) objective.



PROJECT  
NUMBER

2 3 9 0

STANDARDIZED TEST RESULTS\*  
Form EV 77.01 (B)

Check the appropriate box.

Duplicate the page as needed  
and report separately by  
measurement area for all  
project schools combined, and  
all comparison schools combined.

PROJECT SCHOOLS DATA

☒

COMPARISON SCHOOLS DATA

☐

READING

LANGUAGE DEVELOPMENT

MATHEMATICS

OTHER

☐  
☐  
☒  
☐

Check the appropriate box  
reporting separately by  
Area of Measurement

Grade level (1)	Pretest code EV 77.11 (B) (2)	Post-test code EV 77.11 (B) (3)	Date of pretest (4)	Date of post-test (5)	Number of students both pre- and post- tested (6)	Pretest Scores to one decimal place		Post-test Scores to one decimal place		Difference (Col. 9 minus Col. 7) (11)	Type of Score** (12)	State Use Only (13)
						raw (7)	standard deviation (8)	raw (9)	standard deviation (10)			
4 X	2043	2043	10/76	4/77	178	30.5	13.1	41.6	8.3	11.1	RAW	
4 X			10/76	4/77	178	3.5		4.6		11 months	G.E.	
5 X	2053	2053	10/76	4/77	184	27.7	8.6	34.2	8.5	6.5	RAW	
5 X			10/76	4/77	184	5.1		5.9		8 months	G.E.	
X												
X												
X												
X												
X												
XX												
XX												
XX												

\*Use this table for reporting data regarding participants tested in correct level for grade enrolled, as indicated in  
publisher's instructions. Only participants who took both pretest and post-test should be reported.

\*\*Where not possible to use Raw Scores, indicate the type of score: raw for percentile equivalents, stand. for  
standard scores, stan. for stanines, etc.

EV 77.01 (B)

PROJECT  
NUMBER

2 3 9 0

STANDARDIZED TEST RESULTS\*  
Form EV 77.01 (B)

Check the appropriate box.  
Duplicate the page as needed  
and report separately by

(Report for tests described on EV 77.11  
(B); report other tests (and sub-tests)

READING

LANGUAGE DEVELOPMENT

☐  
☐

PROJECT NUMBER 2 3 9 0

STANDARDIZED TEST RESULTS\*  
Form EV 77-01 (B)

Check the appropriate box.  
Duplicate the page as needed  
and report separately by  
measurement area for all  
project schools combined, and  
all comparison schools combined.

(Report for tests described on EV 77.11  
(B); report other tests (and sub-tests)  
on EV 77.11 (A))

READING

LANGUAGE DEVELOPMENT

MATHEMATICS

OTHER

PROJECT SCHOOLS DATA ☐COMPARISON SCHOOLS DATA ☒

Grade level (1)	Pretest code EV 77.11 (B) (2)	Post-test code EV 77.11 (B) (3)	Date of pretest (4)	Date of post-test (5)	Number of students both pre- and post-tested (6)	Pretest Scores to one decimal place		Post-test Scores to one decimal place		Difference (Col. 9 minus Col. 7) (11)	Type of Score** (12)	State Use Only (13)
						raw (7)	standard deviation (8)	raw (9)	standard deviation (10)			
3 X												
4 X	2043	2043	10/76	4/77	164	30.4	13.8	39.9	9.5	7.8	RAW	
4 X			10/76	4/77	164	3.5		4.2		7 months	G.E.	
5 X	2053	2053	10/76	4/77	172	27.1	9.1	32.2	9.6	5.1	RAW	
X			10/76	4/77	172	5.0		5.6		6 months	G.E.	
X												
X												
X												
X												
X												
X												
XX												
XX												
XX												

\*Use this table for reporting data regarding participants tested in correct level for grade enrolled, as indicated in publisher's instructions. Only participants who took both pretest and post-test should be reported.

\*\*Where not possible to use Raw Scores, indicate the type of score: file for percentile equivalents, stand. for standard scores, stan. for stanines, etc.

EV 77.01 (B)

## PROJECT

NUMBER 2 3 9 0

## STATUS OF COMPONENT OBJECTIVES

Form EV 77.02 (A)

Duplicate this form as needed. Use separate pages for each component checking the one that applies:

(1) Instruction X; (2) Staff Development       ; (3) Program Development       ; (4) Instructional Support       ;  
 (5) Evaluation and Research       ; (6) Management       ; (7) Parent Participation       ; (8) Guidance       ; (9) Other       .

Record a brief description of each objective in the component checked above (page 4 of application). Record the anticipated level of attainment (1)	The measure selected* (2)	Accomplishment of Objectives			State Use Only (7)
		Did you meet them? **		Analysis of Differentiated Effects	
		Yes or No (3)	Percent of accomplishment (4)		
Objective 1.0 Given one hour per week of computer/video graphic instruction, October 1976-May 1977, TELE-MATH target students will master 80% of the computation objectives in which they receive instruction.	6002	Yes	102%	Areas where performance was above expected*** (5) Grade 4 Grade 5 (see Table 5, Figures 1 and 2)	Areas where performance was below expected*** (6)
Objective 2.0 Given one hour per week of computer/video graphic instruction, October 1976-May 1977, TELE-MATH target students will score significantly higher than the control group on an end-of-year post-test.	6000 and 6001	Yes	100%	All schools, except one Higher and lower achieving school groupings Aggregated data for grades 4 and 5. (see Tables 6 and 7, Figures 3-8)	Linda Vista

\*If performance was measured, identify the measure and target.

64

\*If performance was measured, identify the measure and its degree of reliability. Record the code number from the Evaluation Measures pages (EV 77.11 (A) or (B)), otherwise insert N.A.

\*\*Insert yes if evidence (described in Column 2) indicates successful accomplishment of the objective, or no if performance is not at the level expected. In addition, insert a percent of accomplishment; e.g., 50% if you have achieved 1/2 of what was expected, or 120% if assessment indicates 20% above expectation.

\*\*\*For example: 3rd and 5th grade pupils at Washington School; the prescriptive materials are inadequate and will be revised. You may refer to pages in your Analysis Narrative.

Duplicate this form as needed. Use separate pages for each component checking the one that applies:  
 (1) Instruction X; (2) Staff Development; (3) Program Development; (4) Instructional Support;  
 (5) Evaluation and Research; (6) Management; (7) Parent Participation; (8) Guidance; (9) Other.

Record a brief description of each objective in the component checked above (page 4 of application). Record the anticipated level of attainment (1)	Accomplishment of Objectives				State Use Only (7)
	The measure selected* (2)	Did you meet them?***		Areas where performance was above expected*** (5)	Areas where performance was below expected*** (6)
		Yes or No (3)	Percent of accomplishment (4)		
Objective 2.0 Given one hour per week of computer/videographic instruction October 1976-May 1977:	2043 2053	Yes	100%+	All higher achieving schools both grade levels (see Table 8 and Figure 9)	
a) TELE-MATH target students in above average* schools will, on the average, score at or above their highest mean score of the preceding three years (raw scores) as measured by the CTBS arithmetic computation section.	2043 2053	Yes	108%	All lower achieving schools both grade levels (see Table 9 and Figure 10)	

\*If performance was measured, identify the measure and its degree of reliability. Record the code number from the Evaluation Measures pages (EV 77.11 (A) or (B)), otherwise insert N.A.

\*\*Insert yes if evidence (described in Column 2) indicates successful accomplishment of the objective, or no if performance is not at the level expected. In addition, insert a percent of accomplishment; e.g., 50% if you have achieved  $\frac{1}{2}$  of what was expected, or 120% if assessment indicates 20% above expectation.

\*\*\*For example: 3rd and 5th grade pupils at Washington School; the prescriptive materials are inadequate and will be revised. You may refer to pages in your Analysis Narrative.

EV 77.02 (A)

# STATUS OF COMPONENT OBJECTIVES

Form EV 77.02 (A)

PROJECT  
NUMBER 2 3 9 0

Duplicate this form as needed. Use separate pages for each component checking the one that applies:

- (1) Instruction X; (2) Staff Development; (3) Program Development; (4) Instructional Support; (5) Evaluation and Research; (6) Management; (7) Parent Participation; (8) Guidance; (9) Other.

Record a brief description of each objective in the component checked above (page 4 of application). Record the anticipated level of attainment (1)	The measure selected* (2)	Accomplishment of Objectives			State Use Only (7)
		Did you meet them? **		Analysis of Differentiated Effects	
		Yes or No (3)	Percent of accomplishment (4)		
Objective 4.0 Given one hour per week of computer/video graphic instruction, October 1976-May 1977, TELE-MATH target students will on the average, score significantly higher than the control group on the end-of-year CTBS arithmetic computation section (raw scores; level of significance = .20).	2043 2053	Yes	100%+	<p>Areas where performance was above expected*** (5)</p> <p>Areas where performance was below expected*** (6)</p>	

\*If performance was measured, identify the measure and its degree of reliability. Record the code number from the Evaluation Measures pages (EV 77.11 (A) or (B)), otherwise insert N.A.

\*\*Insert yes if evidence (described in column 2) indicates successful accomplishment of the objective, or no if performance is not at the level expected. In addition, insert a percent of accomplishment; e.g., 50% if you have achieved 1/2 of what was expected, or 120% if assessment indicates 20% above expectation.

\*\*\*For example: 3rd and 5th grade pupils at Washington School; the prescriptive materials are inadequate and will be revised. You may refer to pages in your Analysis Narrative.

Page No. 2

EV 77.02 (A)

STATUS OF COMPONENT OBJECTIVES  
Form EV 77.02 (A)

PROJECT  
NUMBER 2 3 9 0

Duplicate this form as needed. Use separate pages for each component.

Duplicate this form as needed. Use separate pages for each component checking the one that applies:  
(1) Instruction; (2) Staff Development; (3) Program Development; (4) Instructional Support;  
(5) Evaluation and Research; (6) Management; (7) Parent Participation; (8) Guidance; (9) Other.

Record a brief description of each objective in the component checked above (page 4 of application). Record the anticipated level of attainment (1)	The measure selected* (2)	Accomplishment of Objectives			State Use Only (7)
		Analysis of Differentiated Effects			
		Did you meet them? **	Areas where performance was above expected*** (5)	Areas where performance was below expected*** (6)	
		Yes (3) No (4)			
Objective 5.0 Given one pre-service workshop, mathematics laboratory teachers, (and instructional aides, if assigned) in target schools will, by October 1, 1976, demonstrate functional proficiency in computer/videographic system operation.	8000	Yes	100% (4)	All key teachers	
67 Objective 6.0 Given one pre-service and a minimum of three inservice workshops, mathematics laboratory teachers and instructional aides in target schools will, by February 1, 1977, demonstrate knowledge of each drill activity program format and its application to reinforce specific computation objective.	N.A. (onsite observations)	Yes	100%	All telemath teacher assistants and key teachers.	

\*If performance was measured, identify the measure and its degree of reliability. Record the code number from the Evaluation Measures pages (EV 77.11 (A) or (B)), otherwise insert N.A.

\*\*Insert yes if evidence (described in Column 2) indicates successful accomplishment of the objective, or no if performance is not at the level expected. In addition, insert a percent of accomplishment; e.g., 50% if you have achieved  $\frac{1}{2}$  of what was expected, or 120% if assessment indicates 20% above expectation.

\*\*\*For example: 3rd and 5th grade pupils at Washington School; the prescriptive materials are inadequate and will be revised. You may refer to pages in your Analysis Narrative.

# STATUS OF COMPONENT OBJECTIVES Form EV 77.02 (A)

PROJECT  
NUMBER 2 3 9 0

Duplicate this form as needed. Use separate pages for each component checking the one that applies:  
(1) Instruction; (2) Staff Development; (3) Program Development X; (4) Instructional Support;  
(5) Evaluation and Research; (6) Management; (7) Parent Participation; (8) Guidance; (9) Other.

Record a brief description of each objective in the component checked above (page 4 of application). Record the anticipated level of attainment (1)	The measure selected* (2)	Accomplishment of Objectives				State Use Only (7)
		Did you meet them? **		Analysis of Differentiated Effects		
		Yes or No (3)	Percent of accomplishment (4)	Areas where performance was above expected*** (5)	Areas where performance was below expected*** (6)	
Objective 7.0 By September 13, 1976, 75% of the district level 4-6 mathematics objectives relating to computation will have reinforcing drill activities programmed for delivery to pupils via the computer/videographic system.	N.A. (telemath guide and onsite observations)	Yes	100%			Slight time delay (2 weeks) in receipt of some programs, initially
Objective 8.0 By February 1, 1977, 100% of the district level 4-6 mathematics objectives relating to computation will have reinforcing drill activities programmed for delivery to pupils via the computer/videographic system.	N.A. (telemath guide and onsite observations)	Yes	100%			

\*If performance was measured, identify the measure and its degree of reliability. Record the code number from the Evaluation Measures pages (EV 77.11 (A) or (B)), otherwise insert N.A.  
\*\*Insert yes if evidence (described in Column 2) indicates successful accomplishment of the objective, or no if performance is not at the level expected. In addition, insert a percent of accomplishment; e.g., 50% if you have achieved 1/2 of what was expected, or 120% if assessment indicates 20% above expectation.  
\*\*\*For example: 3rd and 5th grade pupils at Washington School; the prescriptive materials are inadequate and will be revised. You may refer to pages in your Analysis Narrative.

STATUS OF COMPONENT OBJECTIVES  
Form EV 77.02 (A)

PROJECT NUMBER 2 3 9 0

Duplicate this form as needed. Use separate pages for each component checking the one that applies:  
(1) Instruction; (2) Staff Development; (3) Program Development; (4) Instructional Support;  
(5) Evaluation and Research X; (6) Management; (7) Parent Participation; (8) Guidance; (9) Other.

Record a brief description of each objective in the component checked above (page 4 of application). Record the anticipated level of attainment (1)	The measure selected* (2)	Did you meet them? **		Accomplishment of Objectives		State Use Only (7)
		Yes or No (3)	Percent of accomplishment (4)	Analysis of Differentiated Effects		
				Areas where performance was above expected*** (5)	Areas where performance was below expected*** (6)	
Objective 2.0 By June 30, 1977 the evaluator will have completed all periodic and quarterly checks as required by the "Evaluation Specification Activities" delineated for each project component and will furnish the project director with a statistical and analytical recap of evaluation findings as specified in "Evaluation Specifications for Objectives," 1.0, 2.0, 3.0, and 4.0.	N.A. (This report)	Yes	100%			

\*If performance was measured, identify the measure and its degree of reliability. Record the code number from the Evaluation Measures pages (EV 77.11 (A) or (B)), otherwise insert N.A.

\*\*Insert yes if evidence (described in Column 2) indicates successful accomplishment of the objective, or no if performance is not at the level expected. In addition, insert a percent of accomplishment; e.g., 50% if you have achieved  $\frac{1}{2}$  of what was expected, or 120% if assessment indicates 20% above expectation.

\*\*\*For example: 3rd and 5th grade pupils at Washington School; the prescriptive materials are inadequate and will be revised. You may refer to pages in your Analysis Narrative.



## PROJECT

## STATUS OF COMPONENT OBJECTIVES

NUMBER 2 3 9 0

Form EV 77.02 (A)

Duplicate this form as needed. Use separate pages for each component checking the one that applies:

(1) Instruction \_\_\_\_\_; (2) Staff Development \_\_\_\_\_; (3) Program Development \_\_\_\_\_; (4) Instructional Support \_\_\_\_\_; (5) Evaluation and Research \_\_\_\_\_; (6) Management X \_\_\_\_\_; (7) Parent Participation \_\_\_\_\_; (8) Guidance \_\_\_\_\_; (9) Other \_\_\_\_\_.

Record a brief description of each objective in the component checked above (page 4 of application). Record the anticipated level of attainment (1)	The measure selected* (2)	Did you meet them? **		Accomplishment of Objectives		State Use Only (7)
		Yes (3)	No (4)	Analysis of Differentiated Effects		
				Areas where performance was above expected*** (5)	Areas where performance was below expected*** (6)	
Objective 10.0 By October 11, 1976, all planning, site selection, assignment of personnel, and receipt of hardware and curricular materials for the implementation of the project will be completed.	N.A. (see appendix E)	Yes	100%			

\*If performance was measured, identify the measure and its degree of reliability. Record the code number from the Evaluation Measures pages (EV 77.11 (A) or (B)), otherwise insert N.A.

\*\*Insert yes if evidence (described in Column 2) indicates successful accomplishment of the objective, or no if performance is not at the level expected. In addition, insert a percent of accomplishment; e.g., 50% if you have achieved 1/2 of what was expected, or 120% if assessment indicates 20% above expectation.

\*\*\*For example: 3rd and 5th grade pupils at Washington School; the prescriptive materials are inadequate and will be revised. You may refer to pages in your Analysis Narrative.

Page No. 6

PROJECT NUMBER 2 3 9 0

STATUS OF MAJOR ACTIVITIES  
Form EV 77.02 (B)

EV 77.02 (A)

Given the following list of components, check the one that applies to each component.

Given the following list of components, check the one that applies and use separate reporting forms for each individual component: (1) Instruction X; (2) Staff Development; (3) Program Development; (4) Instructional Support; (5) Evaluation and Research; (6) Management; (7) Parent Participation; (8) Guidance; (9) Other.

Record sequentially the major activities related to each objective for the component (see page 4 of the application)	Yes or No? (2)	If performance was reviewed, give method and person responsible** (3)	Status at Interim (4)	State findings, conclusions and recommendations (you may refer to pages in your Analysis Narrative) (5)	State Use Only (6)
1.1 Schools furnish lists of eligible students (by classroom)	Yes	List of eligible students on file with evaluator	On schedule	All schools(except Encanto due to classroom shifts) provided lists by Sept. 24.	
1.2 Randomly divide into Tele-Math and control groups	Yes	Telemath and comparison rosters on file with coordinator and evaluator	Slightly behind schedule	Target and comparison list delivered to schools Oct. 4-6.	
1.3 Divide Tele-Math students into instructional groups and schedule to math center/lab. (1 hour per week)	Yes	Assignment sheets and schedules reviewed quarterly by evaluator	Satisfactory	After first quarter onsite visit, scheduling functioned well. Illnesses, assemblies, etc. caused some minor make-up problems.	
1.5 Pretest, provide instruction, 1.6 posttest and maintain ongoing records 1.7 (by objective) 1.8	Yes	Student profiles indicating progress reviewed and summarized quarterly by evaluator	Satisfactory	In general, recordkeeping activities went well. Some additional cooperation is needed from a couple of teachers.	

\*Record yes if the activity was implemented, otherwise record no.  
\*\*For example: staff interview with checklist (evaluator), verified by observation (project director), etc.  
\*\*\*Insert "satisfactory" if the activity is accomplished or judged adequate; insert "unsatisfactory" if the activity is not accomplished or judged inadequate.

STATUS OF MAJOR ACTIVITIES  
Form EV 77.02 (B)

PROJECT  
NUMBER 2 3 9 0

Given the following list of components, check the one that applies and use separate reporting forms for each individual component: (1) Instruction X; (2) Staff Development; (3) Program Development; (4) Instructional Support; (5) Evaluation and Research; (6) Management; (7) Parent Participation; (8) Guidance; (9) Other.

Record sequentially the major activities related to each objective for the component (see page 4 of the application)	1.0* Instruction (2)	If performance was reviewed, give method and person responsible** (3)	Status at Interim (4)	State findings, conclusions and recommendations (you may refer to pages in your Analysis Narrative) (5)	State Use Only (6)
1.9 Supply evaluation data to project director	Yes	Quarterly summary reports and end of year summary on file with project director and project coordinator	Satisfactory	Oral/written reports provided quarterly by evaluator	
2.1 Identify Tele-Math and comparison groups and provide instruction	Yes	(see activities 1.1 through 1.6)			
2.2 Administer posttest (district survey tests)	Yes	CRT Tests results summarized within this report	Satisfactory	District CRT survey tests administered May 24-26.	
2.3 Supply evaluation data	Yes	(see activity 1.9)			
3.1 Identify Tele-Math and comparison groups and provide instruction	Yes	(see activities 1.1 through 1.6)			
3.2 Administer the Computational Subtest of the CTBS to students.	Yes	CTBS Tests results summarized within this report	On schedule	CTBS computational subtest administered by classroom teachers April 13-29.	

\*Record yes if the activity was implemented, otherwise record no.  
\*\*For example: staff interview with checklist (evaluator), verified by observation (project director), etc.  
\*\*\*Insert "satisfactory" if the activity is accomplished or judged adequate; insert "unsatisfactory" if the activity is not accomplished or judged inadequate.

PROJECT  
NUMBER 2 3 9 0

STATUS OF MAJOR ACTIVITIES  
Form EV 77.02 (B)

Given the following list of components, check the one that applies and use separate reporting forms for each individual component. (1) Instructional Support

EV 77.02 (B)

Given the following list of components, check the one that applies and use separate reporting forms for each individual component: (1) Instruction X; (2) Staff Development; (3) Program Development; (4) Instructional Support; (5) Evaluation and Research; (6) Management; (7) Parent Participation; (8) Guidance; (9) Other.

Record sequentially the major activities related to each objective for the component (see page 4 of the application)	1.1 (1)	1.2 (2)	If performance was reviewed, give method and person responsible** (3)	Status at Interim (4)	State findings, conclusions and recommendations (you may refer to pages in your Analysis Narrative) (5)	State Use Only (6)
3.3 Supply evaluation data to project director	Yes		Summary tables and figures provided to coordinator	On schedule	Summary statistics in the form of tables, histograms, and bar graphs provided in late May--early June.	
4.1 Identify Tele-Math and comparison groups and provide instruction	Yes		(see activities 1.1 through 1.6)			
4.2 Administer the Computational Subtest	Yes		Summary tables provided to project coordinator, key teachers and site administrators	On schedule	Students pretested Oct. 11-15, posttested April 13-29 by classroom teachers	
4.3 of the CTBS to Tele-Math and control students (pretest and posttest)	Yes		Pretest data provided in Nov., tentative final data provided in early--mid June.	Satisfactory	Statistical summaries provided to project personnel by evaluator	
4.4 Supply evaluation data to project director	Yes					

\*Record yes if the activity was implemented, otherwise record no.

\*\*For example: staff interview with checklist (evaluator), verified by observation (project director), etc.

\*\*\*Insert "satisfactory" if the activity is accomplished or judged adequate; insert "unsatisfactory" if the activity is not accomplished or judged inadequate.

Given the following list of components, check the one that applies and use separate reporting forms for each individual component: (1) Instruction; (2) Staff Development X; (3) Program Development; (4) Instructional Support; (5) Evaluation and Research; (6) Management; (7) Parent Participation; (8) Guidance; (9) Other.

Record sequentially the major activities related to each objective for the component (see page 4 of the application)	Yes (2)	If performance was reviewed, give method and person responsible** (3)	Status at Interim (4)	State findings, conclusions and recommendations (you may refer to pages in your Analysis Narrative) (5)	State Use Only (6)
5.1 Select site and materials for pre-service workshop by Sept. 1.	Yes	List of materials ordered and school names on file.	On schedule	Workshop planning occurred in early August.	
5.2 Select dates and time of workshop by Sept. 1.	Yes	Workshop notice on file	Slightly behind schedule	Workshop scheduled for second week of September	
5.3 Secure names of participants and notify them of workshop	Yes	Workshop notice on file and names of participants	Slightly behind schedule	Memo/agenda sent out in Mid-Sept.	
5.4 Conduct workshop	Yes	Workshop agenda and Service Effectiveness Forms	Slightly behind schedule	Workshop delayed due to lack of hardware.	
5.5 Evaluate participants	Yes	Performance test administered by evaluator/coordinator	Satisfactory	All participants satisfactorily completed performance test and mailed back Service Effectiveness Forms.	

\*Record yes if the activity was implemented, otherwise record no.  
\*\*For example: staff interview with checklist (evaluator), verified by observation (project director), etc.

\*\*\*Insert "satisfactory" if the activity is accomplished or judged adequate; insert "unsatisfactory" if the activity is not accomplished or judged inadequate.

PROJECT NUMBER 2 3 9 0

Given the following list of components, check the one that applies and use separate reporting forms for each individual component: (1) Instruction; (2) Staff Development; (3) Program Development; (4) Instructional Support; (5) Evaluation and Research; (6) Management; (7) Parent Participation; (8) Guidance; (9) Other.

Record sequentially the major activities related to each objective for the component (see page 4 of the application)	Is this activity a major activity?	If performance was reviewed, give method and person responsible**	Status at Interim	State findings, conclusions and recommendations (you may refer to pages in your Analysis Narrative)	State Use Only
(1)	(2)	(3)	(4)	(5)	(6)
6.1 Select site, date and time of inservice workshops	Yes	Notices and agendas of workshops on file with project coordinator	Satisfactory	Several workshops and meetings held during the fall semester	
6.2 Notify participants	Yes	Agendas mailed	Satisfactory	Midyear workshops notice on file.	
6.3 Secure substitutes	No	--	--	No substitutes needed/used.	
6.4 Conduct inservice	Yes	Agenda on file	Satisfactory	Specified tasks completed.	
6.5 Evaluate participants	Yes	Evaluator observations during 2nd and 3rd quarter onsite visits	Satisfactory	Aides demonstrated proficiency in the use of the Tele-Math programs.	

\*Record yes if the activity was implemented, otherwise record no.

\*\*For example: Staff interview with checklist (evaluator), verified by observation (project director), etc.  
\*\*\*Insert "satisfactory" if the activity is accomplished or judged adequate; insert "unsatisfactory" if the activity is not accomplished or judged inadequate.

PROJECT  
NUMBER

2 3 9 0

# STATUS OF MAJOR ACTIVITIES

Form EV 77.02 (B)

Given the following list of components, check the one that applies and use separate reporting forms for each individual component: (1) Instruction; (2) Staff Development; (3) Program Development; (4) Instructional Support; (5) Evaluation and Research; (6) Management; (7) Parent Participation; (8) Guidance; (9) Other.

Record sequentially the major activities related to each objective for the component (see page 4 of the application)	Is this activity a major activity? (2)	If performance was reviewed, give method and person responsible** (3)	Status at Interim (4)	State findings, conclusions and recommendations (you may refer to pages in your Analysis Narrative) (5)	State Use Only (6)
7.1 Identify and assign curriculum writers for summer workshop	Yes	Summer assignments records on file with coordinator	Satisfactory	Writers identified. Each Tele-Math school represented by writer or advisor to committee	
7.2 Complete writing tasks (see sub-activities in application)	Yes	Drafts of math activities on file	On schedule	Activities written to cover all basic instructional objectives.	
7.3 Confer with Gremlin re: Suitability of activities and format of games	Yes	Evaluator observed some conferences	Satisfactory	An ongoing line of communication was maintained.	
7.4 of activities and format of games	Yes	Periodic review of instructional activities available by evaluator	Slightly behind schedule	Programming of activities written during the summer months were delayed due to company's priorities.	
7.5 Program drill games for computer/videographic delivery	Yes	Preliminary curriculum guide written	Satisfactory	Actually not "worksheets", but activity description sheets. Developed into a guide for site use.	
7.6 Prepare worksheets to accompany games	Yes				

\*Record yes if the activity was implemented, otherwise record no.  
\*\*For example: Staff interview with checklist (evaluator), verified by observation (project director), etc.  
\*\*\*Insert "satisfactory" if the activity is accomplished or judged adequate; insert "unsatisfactory" if the activity is not accomplished or judged inadequate.

PROJECT  
NUMBER

2 3 9 0

# STATUS OF MAJOR ACTIVITIES

Form EV 77.02 (B)

Given the following list of components, check the one that applies and use separate reporting forms for each individual component:

Form EV 77.02 (B)

PROJECT NUMBER 2 3 2 0

Given the following list of components, check the one that applies and use separate reporting forms for each individual component: (1) Instruction; (2) Staff Development; (3) Program Development; (4) Instructional Support; (5) Evaluation and Research; (6) Management; (7) Parent Participation; (8) Guidance; (9) Other.

Record sequentially the major activities related to each objective for the component (see page 4 of the application)	Is this activity a major activity? (2)	If performance was reviewed, give method and person responsible** (3)	Status at Interim (4)	State findings, conclusions and recommendations (you may refer to pages in your Analysis Narrative) (5)	State Use Only (6)
8.1 Identify and assign curriculum writers for fall semester writing	Yes	Names and assignment records on file	On schedule	No "new writers" assigned.	
8.2 Complete writing tasks	Yes	Copies of new activities included in revised guide	On schedule	New guide, including all instructional activities, revised during Christmas vacation. Additional writing during Spring Vacation.	
7-8.3-8.6 (Same as Act. 7.3-7.6)	Yes	(see activities 7.3 - 7.6)			

\*Record yes if the activity was implemented, otherwise record no.

\*\*For example: staff interview with checklist (evaluator), verified by observation (project director), etc.

\*\*\*Insert "satisfactory" if the activity is accomplished or judged adequate; insert "unsatisfactory" if the activity is not accomplished or judged inadequate.



# STATUS OF MAJOR ACTIVITIES

Form EV 77.02 (B)

PROJECT NUMBER 2 3 9 0

Given the following list of components, check the one that applies and use separate reporting forms for each individual component: (1) Instruction; (2) Staff Development; (3) Program Development; (4) Instructional Support; (5) Evaluation and Research; (6) Management; (7) Parent Participation; (8) Guidance; (9) Other.

Record sequentially the major activities related to each objective for the component (see page 4 of the application)	Is this activity being implemented?	If performance was reviewed, give method and person responsible**	Status at Interim	State findings, conclusions and recommendations (you may refer to pages in your Analysis Narrative)	State Use Only
(1)	(2)	(3)	(4)	(5)	(6)
9.0 (See activities for Objectives 1.0 - 8.0)	Yes	(see summaries on preceeding pages)			

\*Record yes if the activity was implemented, otherwise record no.

\*\*For example: staff interview with checklist (evaluator), verified by observation (project director), etc.

\*\*\*Insert "satisfactory" if the activity is accomplished or judged adequate; insert "unsatisfactory" if the activity is not accomplished or judged inadequate.

Page No. 9

EV 77.02 (B)

PROJECT NUMBER 2 3 9 0

STATUS OF MAJOR ACTIVITIES Form EV 77.02 (B)

Given the following list of components, check the one that applies and use separate reporting forms for each individual component: (1) Instruction; (2) Staff Development; (3) Program Development; (4) Instructional Support; (5) Evaluation and Research; (6) Management; (7) Parent Participation; (8) Guidance; (9) Other.

STATUS OF MAJOR ACTIVITIES  
FORM EV 77.02 (B)

PROJECT NUMBER 2 3 9 0

Given the following list of components, check the one that applies and use separate reporting forms for each individual component: (1) Instruction; (2) Staff Development; (3) Program Development; (4) Instructional Support; (5) Evaluation and Research; (6) Management X; (7) Parent Participation; (8) Guidance; (9) Other.

Record sequentially the major activities related to each objective for the component (see page 4 of the application)	Is this activity being implemented?	If performance was reviewed, give method and person responsible**	Status at Interim	State findings, conclusions and recommendations (you may refer to pages in your Analysis Narrative)	State Use Only
(1)	(2)	(3)	(4)	(5)	(6)
10.1 Select site	Yes	Site selection confirmed in Spring during site conferences	Satisfactory	Site conferences with principal occurred in the Spring of 1976.	
10.2 Conduct site planning meetings	Yes	Schedule of site visits	Satisfactory	There were two planning meetings in early September preceded by ongoing Spring and Summer meetings.	
10.3 Order and receive curriculum writing supplies	Yes	Purchase orders on file	Satisfactory	Supplies purchased as necessary.	
10.4 Order, accept and install computer/videographic equipment for each school	Yes	Observation of equipment onsite by evaluator	Slightly behind schedule	Schools received equipment as initial training workshops (9/29 and 10/1)	
10.5 Order computer/videographic programs for each school	Yes	Observation of activity programs by evaluator during onsite visits.	Slightly behind schedule	Initial set of tapes provided at Sept. 29/Oct. 1 meetings. Additional tapes provided in mid October and again on December 9.	

\*Record yes if the activity was implemented, otherwise record no.

\*\*For example: staff interview with checklist (evaluator), verified by observation (project director), etc.

\*\*\*Insert "satisfactory" if the activity is accomplished or judged adequate; insert "unsatisfactory" if the activity is not accomplished or judged inadequate.

PROJECT

NUMBER 2 3 9 0

## STATUS OF MAJOR ACTIVITIES

Form EV 77.02 (B)

Given the following list of components, check the one that applies and use separate reporting forms for each individual component: (1) Instruction; (2) Staff Development; (3) Program Development; (4) Instructional Support; (5) Evaluation and Research; (6) Management I; (7) Parent Participation; (8) Guidance; (9) Other.

Record sequentially the major activities related to each objective for the component (see page 4 of the application)	Is this activity being done?	If performance was reviewed, give method and person responsible**	Status at Interim	State findings, conclusions and recommendations (you may refer to pages in your Analysis Narrative)	State Use Only
(1)	(2)	(3)	(4)	(5)	(6)
10.6 Hire instructional aides (T.A.'s) for each site by Oct. 1.	Yes	Personnel assignment records on file with project coordinator	On schedule	All telemath aides employed by Oct. 1 except Freese aide. (central office mix-up)	
10.7 Hire hourly clerical help	Yes	Personnel assignment records on file with project coordinator	Satisfactory	Minimal hourly clerical needed/used.	

\*Record yes if the activity was implemented, otherwise record no.  
 \*\*For example: staff interview with checklist (evaluator), verified by observation (project director), etc.  
 \*\*\*Insert "satisfactory" if the activity is accomplished or judged adequate; insert "unsatisfactory" if the activity is not accomplished or judged inadequate.

Page No. 9

PROJECT

NUMBER 2 3 9 0

## STATUS OF STUDENT PERFORMANCE OBJECTIVES

Form EV 77.02 (B)

Record only objectives not met

Did you meet this?

Accomplishment of Objectives  
Analysis of Differentiated Reports

STATUS OF STUDENT PERFORMANCE OBJECTIVES  
Form EV 77.02 (C)

PROJECT  
NUMBER 2 3 9 0

Record only objectives using student measurement (regardless of component) (1)	The measure selected* (2)	Did you meet them? **		Accomplishment of Objectives Analysis of Differentiated Effects		State Use Only (7)
		Yes or No (3)	Percent of accomplishment (4)	Areas where performance was above expected*** (5)	Areas where performance was below expected*** (6)	
Objective 1.0 Given one hour per week of computer/videographic instruction, October 1976-May 1977, TELE-MATH target students will master 80% of the computation objectives in which they receive instruction.	6002	Yes	102%	Grade 4 Grade 5 (see Table 5, Figures 1 and 2)		
Objective 2.0 Given one hour per week of computer/videographic instruction, October 1976-May 1977, TELE-MATH target students will score significantly higher than the control group on an end-of-year post-test.	6000 and 6001	Yes	100%	All schools, except one  Higher and lower achieving school groupings  Aggregated data for grades 4 and 5.  (see Tables 6 and 7, Figures 3-8)	Linda Vista	

\*If performance was measured, identify the measure and record the code number from the Evaluation Measures pages (EV 77.11).

\*\*Insert yes if evidence (described in Column 2) indicates successful accomplishment of the objective, or no if performance is not at the level expected. In addition, insert a percent of accomplishment; e.g., 50% if you have achieved  $\frac{1}{2}$  of what was expected, or 120% if assessment indicates 20% above expectation.

\*\*\*For example: 3rd and 5th grade pupils at Washington School; the boys' scores were better; classrooms where teachers did not fully implement the procedures. You may refer to pages in your Analysis Narrative.

EV 77.02 (C)

Accomplishment of Objectives Analysis of Differentiated Effects							State Use Only (7)
Record only objectives using student measurement (regardless of component) (1)	The measure selected* (2)	Did you meet them**		Areas where performance was above expected*** (5)	Areas where performance was below expected*** (6)		
		Yes or No (3)	Percent of accomplish- ment (4)				
Objective 3.0 Given one hour per week of computer/videographic instruction October 1976-May 1977:	2043 2053	Yes	100%	All higher achieving schools both grade levels (see Table 8 and Figure 9)			
a) TELE-MATH target students in above average* schools will, on the average, score at or above their highest mean score of the preceding three years (raw score) as measured by the CTBS arithmetic computation section.		Yes	108%	All lower achieving schools both grade levels (see Table 9 and Figure 10)			
b) TELE-MATH target students in below average** schools will, on the average, reduce the gap between the national norm and the average of their preceding three years by one-third as measured by the CTBS arithmetic compu- tation section.	2043 2053	Yes					

\*If performance was measured, identify the measure and record the code number from the Evaluation Measures pages (EV 77.11).

\*\*Insert yes if evidence (described in Column 2) indicates successful accomplishment of the objective, or no if performance is not at the level expected. In addition, insert a percent of accomplishment; e.g., 50% if you have achieved  $\frac{1}{2}$  of what was expected, or 120% if assessment indicates 20% above expectation.

\*\*\*For example: 3rd and 5th grade pupils at Washington School; the boys' scores were better; classrooms where teachers did not fully implement the procedure. You may refer to pages in your Analysis Narrative.

PROJECT NUMBER 2 3 9 0 STATUS OF STUDENT PERFORMANCE OBJECTIVES Form EV 77.02 (C)

Record only objectives using student measurement (regardless of component)	The measure selected* (2)	Did you meet them**		Analysis of Differentiated Effects		State Use Only (7)
		Yes or No (3)	Percent of accomplishment (4)	Area where performance was above expected*** (5)	Area where performance was below expected*** (6)	
Objective 4.0 Given one hour per week of computer/video graphic instruction, October 1976-May 1977, TELE-MATH target students will on the average, score significantly higher than the control group on the end-of-year CTBS arithmetic computation section (raw score; level of significance = .20).	2043 2053	Yes	100%	All Schools Higher and lower achieving school groupings Aggregated data for grades 4 and 5 (see Tables 10-13 and Figures 11-20)		

\*If performance was measured, identify the measure and record the code number from the Evaluation Measures pages (EV 77.11).

\*\*Insert yes if evidence (described in Column 2) indicates successful accomplishment of the objective, or no if performance is not at the level expected. In addition, insert a percent of accomplishment; e.g., 50% if you have achieved 1/2 of what was expected, or 120% if assessment indicates 20% above expectation.

\*\*\*For example: 3rd and 5th grade pupils at Washington School; the boys' scores were better; classrooms where teachers did not fully implement the procedures. You may refer to pages in your Analysis Narrative.

EV 77.02 (C)

Where the changes vary by school,  
Duplicate as needed completing the form  
for each individual school

FOR PROJECT SCHOOL NO. \_\_\_\_\_

SUMMARY OF PROJECT CHANGES  
IN THE EDUCATIONAL PROGRAM  
Form EV 77.03 (A)

PROJECT NUMBER 2 3 2 0

By type indicated in column (1), briefly record program elements in column (2) and (4), which characterize the programs

Type of Program Element (examples follow each) (1)	The Regular (old) Program (2)	The Project's Program			State Use (6)
		Rank* (3)	Type** (4)	Elements used to improve your school program (5)	
1. <u>Staffing and their Deployment</u> Indicate how regular and support personnel function for instructional purposes.	1 teacher for each grade, 4 and 5. (Inschool re- source teacher in lower achieving schools.)	5	6	4 hours of aide time daily to monitor pull-out program.	
2. <u>Learning materials</u> <u>Supple-</u> <u>mentary materials</u> (project or commercially prepared) and special equipment.	Basic text, worksheets, workbooks, enrichment materials, and teacher prepared materials to meet district math ob- jectives at each grade level.	1	6	Telemath computerized videographic system.	
3. <u>Instructional methodology</u> <u>General procedures for in-</u> <u>struction</u> ; i.e., use of group- ing, pull out labs, peer teaching, etc.	Teacher lecture and demonstration for large group with some ability grouping for better and less able students. (Math lab to supplement math instruction in low achieving schools.)	2	6	Students work in small groups on a pull-out basis one hour per week for skill and practice on diagnosed computational skills via Telemath.	

\*Rank order the contribution to overall project effectiveness for any changes in program elements described in column 5; i.e., insert a (1) for the change in program element considered most important, a (2) for the change in program element deemed next in importance, etc.  
\*\*Explain the use of the project elements described in column 5; insert a (a) if they replace those for the regular program, or a (b) if they are a modification or addition to it.

EV 77.03 (A)

Where the changes vary by school,  
Duplicate as needed completing the form  
for each individual school

SUMMARY OF PROJECT CHANGES

PROJECT NUMBER 2 3 9 0

Where the changes vary by school,  
Duplicate as needed completing the form  
for each individual school

SUMMARY OF PROJECT CHANGES  
IN THE EDUCATIONAL PROGRAM  
Form EV 77.03 (B)

PROJECT NUMBER 2 3 9 0

FOR PROJECT SCHOOL NO. ---

By type indicated in column (1), briefly record program elements in column (2) and (4), which characterize the programs

Type of Program Element (examples follow each) (1)	The Regular (old) Program (2)	The Project's Program			State Use (6)
		Rank* (3)	Type** (4)	Elements used to improve your school program (5)	
4. <u>Procedures for Individualizing Instruction</u> Describe how individual needs for learning are determined (test scores, staff judgement, etc.). How are appropriate methods and curriculum selected for individual participants?	Students progress with their class or "group" on basis of class or "group" assignment. (Students are allowed to proceed at their own rate in low achieving schools.)	3	6	Students progress at their own individual rate using Telemath System keyed to district math objectives.	
5. <u>Staff Development Methods and experiences used to improve project required skills and knowledge. Describe content and purposes.</u>	Teachers attend after-school inservice classes and receive orientation from resource personnel.	6	6	Inservice workshops for Telemath personnel throughout the year to implement and utilize equipment to greatest degree.	

\*Rank order the contribution to overall project effectiveness for any changes in program elements described in column 5; i.e., insert a (1) for the change in program element considered most important, a (2) for the change in program element deemed next in importance, etc.

\*\*Explain the use of the project elements described in column 5; insert a (a) if they replace those for the regular program, or a (b) if they are a modification or addition to it.

EV 77.03 (B)



Where the changes vary by school,  
Duplicate as needed completing the form  
for each individual school

SUMMARY OF PROJECT CHANGES  
IN THE EDUCATIONAL PROGRAM  
Form EV 77.03 (C)

PROJECT NUMBER 2 3 2 0

FOR PROJECT SCHOOL NO. \_\_\_\_\_

By type indicated in column (1), briefly record program elements in column (2) and (4), which characterize the programs

Type of Program Element (examples follow each) (1)	The Regular (old) Program (2)	The Project's Program			State Use (6)
		Rank* (3)	Type** (4)	Elements used to improve your school program (5)	
6. <u>Non-cognitive Development</u> Pro- cedures for enhancing inter- personal (affective) or psycho- motor growth; e.g., simulation, values clarification and eye- band coordination activities.	Physical fitness program, multi-cultural program, young audience program.	7	6	Manual dexterity required to manipulate keyboard to interact with computerized videographic system. Socialization required to work as a team on telemath system.	
7. <u>Auxiliary Services</u> Library, health, pupil personnel services and parent involvement.	Media Center, math lab parent volunteers, nurse, counseling services and cafeteria service.	4	6	Evaluation.	
8. <u>Other</u>					

86

\*Rank order the contribution to overall project effectiveness for any changes in program elements described in column 5;  
i.e., insert a (1) for the change in program element considered most important, a (2) for the change in program element  
deemed next in importance, etc.  
\*\*Explain the use of the project elements described in column 5; insert a (a) if they replace those for the regular program.  
or a (b) if they are a modification or addition to it.

EV 77.03 (C)

SUMMARY OF PROJECT VS COMPARISON GROUP PERFORMANCE

(to be used as a basis for the Narrative Analysis)

PROJECT NUMBER 2 3 9 0

Language Development ☐ Reading ☐

Mathematics ☐

Other Student Academic Areas ☐

Student Non-Academic Areas ☐

St & (a) if they are a modification or addition to it. EV 77.03 (c)

**SUMMARY OF PROJECT VS COMPARISON GROUP PERFORMANCE**  
 Form EV 77.04  
 (to be used as a basis for the Narrative Analysis)

PROJECT NUMBER 2 3 9 0

☐ Reading ☐ Language Development ☒ Mathematics ☐ Other Student Academic Areas ☐ Student Non-Academic Areas

Indicate the type of measures reported on this page by checking the appropriate box. If you have data for more than one type, submit a separate page for each.

Grade level	School Directory 7 digit Number	Pre-test Averages +				Post-test Scores*				Name of Test and Subject**	Type of Score***	State Use Only		
		Individual School Scores (means)	Weighted Average Overall the Schools (means)	Project Comparison (3)	Project Comparison (4)	Individual School Scores (means)	Weighted Average Overall the Schools (means)	Project Comparison (7)	Project Comparison (8)				Project Comparison (9)	Project Comparison (10)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)		
4	6039515					18.1	14.3			6000 (math)	RAW			
4	6039614					17.3	17.1			6000 (math)	RAW			
4	6039697					26.9	23.6			6000 (math)	RAW			
4	6039879					19.7	20.3			6000 (math)	RAW			
4	6039960					21.9	20.5			6000 (math)	RAW			
4	6040125					26.5	26.1			6000 (math)	RAW			
5	6039515					16.8	15.1			6001 (math)	RAW			
5	6039614					19.1	16.6			6001 (math)	RAW			
5	6039697					23.9	18.6			6001 (math)	RAW			
5	6039879					21.4	22.0			6001 (math)	RAW			
5	6039960					24.9	23.4			6001 (math)	RAW			
5	6040125					23.9	22.4			6001 (math)	RAW			

\*Record post-test scores if the same instrument is used for both pre and post; otherwise record pre and post scores on separate lines. Circle any scores where a low score (or negative difference) is an indication of success.  
 \*\*Insert the test code number from form EV 77.11 and briefly label the content area.  
 \*\*\*Indicate the scale used; G.E. for grade equivalent, file for percentile rank, Stand. for standard score, Raw for raw score, Freq. for frequency count, etc.

+ The project used a randomized posttest-only design for the criterion-referenced objective.

# SUMMARY OF PROJECT VS COMPARISON GROUP PERFORMANCE

Form EV 77.04

PROJECT NUMBER 2 3 9 0

(to be used as a basis for the Narrative Analysis)

☐ Reading ☐ Language Development ☒ Mathematics ☐ Other Student Academic Areas ☐ Student Non-Academic Areas

Indicate the type of measures reported on this page by checking the appropriate box. If you have data for more than one type, submit a separate page for each.

Grade level	School Directory 7 digit Number	Pre-test Averages +			Post-test Scores*			Name of Test and Subject**	Type of Score***	State Use Only	
		Individual School Scores (means)	Weighted Average Overall the Schools (means)		Individual School Scores (means)	Weighted Average Overall the Schools (means)					
			Project Comparison (3)	Project Comparison (4)		Project Comparison (5)	Project Comparison (6)				Project Comparison (7)
(1)	(2)								(11)	(12)	(13)
4	High										
4	Low							24.4	22.6	6000 (math)	RAW
								18.4	17.2	6000 (math)	RAW
4	All										
								20.8	19.7	6000 (math)	RAW
5	High										
5	Low							24.3	21.5	6001 (math)	RAW
								19.2	17.7	6001 (math)	RAW
5	All										
								21.7	19.7	6001 (math)	RAW

\*Record post-test scores if the same test is used

\*Record post-test scores if the same instrument is used for both pre and post; otherwise record pre and post scores on separate lines. Circle any scores where a low score (or negative difference) is an indication of success.

\*\*Insert the test code number from form EV 77.11 and briefly label the content area.

\*\*\*Indicate the scale used; G.E. for grade equivalent, file for percentile rank, Stand. for standard score, Raw for raw score, Freq. for frequency count, etc.

"High" - Higher achieving schools, "Low" - Lower achieving schools, "All" = All six schools

+ The project used a randomized posttest-only design for the criterion-referenced objective.

SUMMARY OF PROJECT VS COMPARISON GROUP PERFORMANCE

PROJECT NUMBER 2 3 9 0

(to be used as a basis for the Narrative Analysis)

Language

EV 77.04

Page No. 14

PROJECT NUMBER 2 3 9 0

SUMMARY OF PROJECT VS COMPARISON GROUP PERFORMANCE  
(to be used as a basis for the Narrative Analysis)

☐ Reading ☐ Language Development ☒ Mathematics ☐ Other Student Academic Areas ☐ Student Non-Academic Areas

Indicate the type of measures reported on this page by checking the appropriate box. If you have data for more than one type, submit a separate page for each.

Grade level	School Directory 7 digit Number	Pre-test Averages			Post-test Scores*			Name of Test and Subject**  (11)	Type of Score***  (12)	State Use Only  (13)	
		Individual School Scores (means)  Project Comparison (3)	Weighted Average Overall the Schools (means)  Project Comparison (4)	Weighted Average Overall the Schools (means)  Project Comparison (5)	Individual School Scores (means)  Project Comparison (6)	Individual School Scores (means)  Project Comparison (7)	Weighted Average Overall the Schools (means)  Project Comparison (8)				
											Project Comparison (9)
(1)	(2)										
4	6039515	26.3	25.8			40.6	37.0		2043 (Math)	RAW	
4	6039614	27.6	25.2			40.8	37.4		2043 (Math)	RAW	
4	6039697	43.5	40.0			46.8	44.4		2043 (Math)	RAW	
4	6039879	21.3	23.9			36.7	36.7		2043 (Math)	RAW	
4	6039960	35.1	34.9			43.2	41.9		2043 (Math)	RAW	
4	6040125	38.5	37.9			45.5	44.8		2043 (Math)	RAW	
5	6039515	24.7	22.9			32.0	26.8		2053 (Math)	RAW	
5	6039614	25.8	23.9			32.0	28.9		2053 (Math)	RAW	
5	6039697	32.3	30.1			38.5	35.6		2053 (Math)	RAW	
5	6039879	25.0	25.9			31.2	31.1		2053 (Math)	RAW	
5	6039960	27.9	28.2			35.0	34.5		2053 (Math)	RAW	
5	6040125	32.3	33.9			37.9	36.9		2053 (Math)	RAW	

\*Record post-test scores if the same instrument is used.

\*Record post-test scores if the same instrument is used for both pre and post; otherwise record pre and post scores on separate lines. Circle any scores where a low score (or negative difference) is an indication of success.  
\*\*Insert the test code number from form EV 77.11 and briefly label the content area.  
\*\*\*Indicate the scale used; G.E. for grade equivalent, file for percentile rank, Stand. for standard score, Raw for raw score, Freq. for frequency count, etc.

# SUMMARY OF PROJECT VS COMPARISON GROUP PERFORMANCE

Form EV 77.04

(to be used as a basis for the Narrative Analysis)

PROJECT NUMBER 2 3 9 0

☐ Reading ☐ Language Development ☒ Mathematics ☐ Other Student Academic Areas ☐ Student Non-Academic Areas

Indicate the type of measures reported on this page by checking the appropriate box. If you have data for more than one type, submit a separate page for each.

Grade level	School Directory 7 digit Number	Pre-test Averages				Post-test Scores*				Name of Test and Subject** (11)	Type of Score*** (12)	State Use Only (13)	
		Individual School Scores (means)		Weighted Average Overall the Schools (means)		Individual School Scores (means)		Weighted Average Overall the Schools (means)					
		Project Comparison (4)		Project Comparison (5)		Project Comparison (6)		Project Comparison (7)					
		(3)	(2)	(3)	(4)	(5)	(6)	(7)	(8)				(9)
4	6039515	3.3	3.3					4.4	3.9		2043 (math)	G.E.	
4	6039614	3.4	3.2					4.4	3.9		2043 (math)	G.E.	
4	6039697	4.7	4.2					6.0	4.9		2043 (math)	G.E.	
4	6039879	3.0	3.2					3.9	3.9		2043 (math)	G.E.	
4	6039960	3.7	3.7					4.7	4.6		2043 (math)	G.E.	
4	6040125	4.1	4.0					5.5	5.1		2043 (math)	G.E.	
5	6039515	4.8	4.6					5.6	5.0		2053 (math)	G.E.	
5	6039614	4.9	4.7					5.6	5.2		2053 (math)	G.E.	
5	6039697	5.6	5.3					7.0	6.3		2053 (math)	G.E.	
5	6039879	4.8	4.9					5.5	5.5		2053 (math)	G.E.	
5	6039960	5.1	5.1					6.1	6.1		2053 (math)	G.E.	
5	6040125	5.6	5.9					6.7	6.5		2053 (math)	G.E.	
*Record post-test scores if the same instrument is used.													

\*Record post-test scores if the same instrument is used for both pre and post; otherwise record pre and post scores on separate lines. Circle any scores where a low score (or negative difference) is an indication of success.  
 \*\*Insert the test code number from form EV 77.11 and briefly label the content area.  
 \*\*\*Indicate the scale used; G.E. for grade equivalent, file for percentile rank, Stand. for standard score, Raw for raw score, Freq. for frequency count, etc.

Page No. 14

EV 77.04

## SUMMARY OF PROJECT VS COMPARISON GROUP PERFORMANCE

Form EV 77.04

PROJECT NUMBER 2 3 9 0

☐ Reading ☐ Language Development ☐ Other Student Academic Areas ☐ Student Non-Academic Areas

**SUMMARY OF PROJECT VS COMPARISON GROUP PERFORMANCE**  
**Form EV 77.04**  
 (to be used as a basis for the Narrative Analysis)

PROJECT NUMBER 2 3 9 0

☐ Reading ☐ Language Development ☒ Mathematics ☐ Other Student Academic Areas ☐ Student Non-Academic Areas

Indicate the type of measures reported on this page by checking the appropriate box. If you have data for more than one type, submit a separate page for each.

Grade level	School Directory 7 digit Number	Pre-test Averages				Post-test Scores*				Name of Test and Subject**  (11)	Type of Score***  (12)	State Use Only  (13)
		Individual School Scores (means)		Weighted Average Overall the Schools (means)		Individual School Scores (means)		Weighted Average Overall the Schools (means)				
		Project Comparison (3)	Project Comparison (4)	Project Comparison (5)	Project Comparison (6)	Project Comparison (7)	Project Comparison (8)	Project Comparison (9)	Project Comparison (10)			
		(1)	(2)									
4	High			38.5	37.1			44.8	43.3	2043 (math)	RAW	
4	Low			25.0	25.0			39.3	37.0	2043 (math)	RAW	
4	All			30.5	30.4			41.6	39.9	2043 (math)	RAW	
5	High			30.5	30.0			36.9	35.4	2053 (math)	RAW	
5	Low			25.3	24.3			31.7	29.1	2053 (math)	RAW	
5	All			27.7	27.1			34.2	32.2	2053 (math)	RAW	

\*Record post-test scores if the same instrument is used for both pre and post; otherwise record pre and post scores on separate lines. Circle any scores where a low score (or negative difference) is an indication of success.  
 \*\*Insert the test code number from form EV 77.11 and briefly label the content area.  
 \*\*\*Indicate the scale used; G.E. for grade equivalent, file for percentile rank, Stand. for standard score, Raw for raw score, Freq. for frequency count, etc.

"High" = Higher Achieving Schools, "Low" = Lower Achieving Schools  
 "All" = All Six Schools

# SUMMARY OF PROJECT VS COMPARISON GROUP PERFORMANCE

Form EV 77.04

PROJECT NUMBER 2 3 9 0 (to be used as a basis for the Narrative Analysis)

☐ Reading ☐ Language Development ☒ Mathematics ☐ Other Student Academic Areas ☐ Student Non-Academic Areas

Indicate the type of measures reported on this page by checking the appropriate box. If you have data for more than one type, submit a separate page for each.

Grade level (1)	School Directory 7 digit Number (2)	Pre-test Averages				Post-test Scores*				Name of Test and Subject** (11)	Type of Score*** (12)	State Use Only (13)
		Individual School Scores (means)		Weighted Average Overall the Schools (means)		Individual School Scores (means)		Weighted Average Overall the Schools (means)				
		Project Comparison (3)	(4)	Project Comparison (5)	(6)	Project Comparison (7)	(8)	Project Comparison (9)	(10)			
4	High			4.0	3.9			5.1	4.7	2043 (math)	G.E.	
4	Low			3.2	3.2			4.1	3.9	2043 (math)	G.E.	
4	All			3.5	3.5			4.6	4.2	2043 (math)	G.E.	
5	High			5.3	5.3			6.5	6.1	2053 (math)	G.E.	
5	Low			4.8	4.7			5.6	5.2	2053 (math)	G.E.	
5	All			5.1	5.0			5.9	5.6	2053 (math)	G.E.	
*Record post-test scores if the same test												

\*Record post-test scores if the same instrument is used for both pre and post; otherwise record pre and post scores on separate lines. Circle any scores where a low score (or negative difference) is an indication of success.

\*\*Insert the test code number from form EV 77.11 and briefly label the content area.

\*\*\*Indicate the scale used; G.E. for grade equivalent, file for percentile rank, Stand. for standard score, Raw for raw score, Freq. for frequency count, etc.

"High" = Higher achieving schools, "Low" = Lower achieving schools  
 "All" = All six schools



(For each component implemented, complete Columns 2 through 8 except where blocked out)

Program Components (1)	Component Encumbrances (1976-77) (2)	Number of Participants*			Reporting Results**		Reporting Findings/Conclusions in Narrative** (8)	State Use Only (9)
		Students (3)	Staff (4)	Parents (5)	Objectives EV 77.02(A) (6)	Activities EV 77.02(B) (7)		
1. Instruction	27,511	473			Yes	Yes	Yes	
2. Staff Development	682		8		Yes	Yes	Yes	
3. Curriculum Development	13,956				Yes	Yes	Yes	
4. Instructional Support	---	---						
5. Evaluation/Research	5,000				Yes	Yes	Yes	
6. Management	750				Yes	Yes	Yes	
7. Parent Involvement	---			---				
8. Guidance	---	---						
9. Other	---	---	---	---				
Total Encumbrances	47,899							

\*Enter the number of participants for each program component except for Curriculum Development, Evaluation/Research and Management. A person is counted when he or she participates in at least a majority of the activities which were appropriate for that person in that component. Participants include only those who received instruction or service, not the people who provided them. Participants involved in more than one component should be counted in each component.

\*\*Record a yes for each component where you included a reporting form numbered EV 77.02(A) and EV 77.02(B); also where you included "Findings/Conclusions" in your Evaluation Report (Component Summary).



PROJECT  
NUMBER 2 3 9 0

EVALUATION MEASURES LIST FOR  
NON-STANDARDIZED TESTS\*  
Form EV 77.11 (A)

Page No. 20

This page  
for Non-St

Form and  
level

(for standardized measures, use the list in the manual (EV 77.11 (B)))

Fill in the blanks and circle the code numbers for measures reported on EV 77.01 (A)

1. Criterion Referenced Tests

Project-Developed  
Subject/Purpose \_\_\_\_\_

6000

Computational Skills Achievement Test

(Math - Grade 4)

Project-Developed  
Subject/Purpose \_\_\_\_\_

6001

Computational Skills Achievement Test

(Math - Grade 5)

Commercial Publisher or Other  
Source  
Subject/Purpose \_\_\_\_\_

6002

Math Mastery Test

(Math Computational Skills)

2. Tests Dealing with Affective Measures of  
Temperament, Attitudes, Needs, Interests,  
Self-Concept, Achievement Motivation, etc.

Project-Developed  
Subject/Purpose \_\_\_\_\_

7000

Project-Developed  
Subject/Purpose \_\_\_\_\_

7001

Commercial Publisher or Other  
Source  
Subject/Purpose \_\_\_\_\_

7002

3. Frequency Counts or Enumeration Data  
of Any Kind

Describe and give purpose

8000

Equipment Operation Performance Test  
(Checklist)

Describe and give purpose

8001

Describe and give purpose

8002

4. Surveys and Structured Interviews  
(Subjective ratings or opinions of  
students, staff or parents)

Describe and give purpose

9000

Service Effectiveness Forms

Describe and give purpose

9001

Implementation Evaluation

Interview Forms

Describe and give purpose

9002

\*Code list for identifying evaluation measures other than standardized achievement tests.  
Include a copy of the test attached to the report returned to Sacramento.

A  
B

A 1  
A 1  
A 1  
B 1  
B 1  
B 1

A 2  
A 2  
A 2  
B 2  
B 2  
B 2

A 3  
A 3  
A 3  
B 3  
B 3  
B 3

A 4  
A 4  
A 4  
B 4  
B 4  
B 4

A 5  
A 5  
A 5  
B 5  
B 5  
B 5

This page is to be used in selecting Standardized test code numbers for the reporting forms.  
or Non-Standardized measures, use the list on page 20 (EV 77.11 (A)) in the blue pages.

# EVALUATION MEASURES LIST FOR STANDARDIZED (NORM-REFERENCED) TESTS Form EV 77.11 (B)

Form and level	Name of test	Code	Form and level	Name of test	Code
	<i>Basic Concept Inventory (FEC)</i>	1012		Mathematics	
	Language			How Much and How Many?	1713
	<i>Betty Caldwell Preschool Inventory (ETS)</i>	1100		<i>Comprehensive Test of Basic Skills (CTB)</i>	
	<i>Bilingual Syntax Measure (HBJ)</i>	1212		Expanded Edition, 1973	
	Language		S A	Reading--Total Alphabet Skills	2011
	<i>Boehm Test of Basic Concepts (PC)</i>	1302	S A	Language--Language	2012
	Language	1402	S A	Mathematics--Mathematics	2013
	<i>California Achievement Test, 1970 (CTB)</i>		S B	Reading--Total Reading	2021
A 1	Reading--Reading	1511	S B	Language--Total Language	2022
A 1	Language--Language	1512	S B	Mathematics--Total Mathematics	2023
A 1	Mathematics--Mathematics	1513	S C	Reading--Total Reading	2031
B 1	Reading--Reading	1611	S C	Language--Total Language	2032
B 1	Language--Language	1612	S C	Mathematics--Total Mathematics	2033
B 1	Mathematics--Mathematics	1613	Q 1	Reading--Total Reading	1841
A 2	Reading--Reading	1521	Q 1	Language--Total Language	1842
A 2	Language--Language	1522	Q 1	Mathematics--Total Mathematics	1843
A 2	Mathematics--Mathematics	1523	R 1	Reading--Total Reading	1941
B 2	Reading--Reading	1621	R 1	Language--Total Language	1942
B 2	Language--Language	1622	R 1	Mathematics--Total Mathematics	1943
B 2	Mathematics--Mathematics	1623	S 1	Reading--Total Reading	2041
A 3	Reading--Reading	1531	S 1	Language--Total Language	2042
A 3	Language--Language	1532	S 1	Mathematics--Total Mathematics	2043
A 3	Mathematics--Mathematics	1533	T 1	Reading--Total Reading	2141
B 3	Reading--Reading	1631	T 1	Language--Total Language	2142
B 3	Language--Language	1632	T 1	Mathematics--Total	
B 3	Mathematics--Mathematics	1633		Mathematics	2143
A 4	Reading--Reading	1541	Q 2	Reading--Total Reading	1851
A 4	Language--Language	1542	Q 2	Language--Total Language	1852
A 4	Mathematics--Mathematics	1543	Q 2	Mathematics--Total Mathematics	1853
B 4	Reading--Reading	1641	R 2	Reading--Total Reading	1951
B 4	Language--Language	1642	R 2	Language--Total Language	1952
B 4	Mathematics--Mathematics	1643	R 2	Mathematics--Total Mathematics	1953
A 5	Reading--Reading	1551	S 2	Reading--Total Reading	2051
A 5	Language--Language	1552	S 2	Language--Total Language	2052
A 5	Mathematics--Mathematics	1553	S 2	Mathematics--Total Mathematics	2053
B 5	Reading--Reading	1651	T 2	Reading--Total Reading	2151
B 5	Language--Language	1652	T 2	Language--Total Language	2152
B 5	Mathematics--Mathematics	1653	T 2	Mathematics--Total	
	<i>Circus (ETS)</i>			Mathematics	2153
	Reading		Q 3	Reading--Total Reading	1861
	Finding Letters and Numbers	1711	Q 3	Language--Total Language	1862
	How Words Sound	1721	Q 3	Mathematics--Total Mathematics	1863
	Language		R 3	Reading--Total Reading	1961
	What Words Mean	1731	R 3	Language--Total Language	1962
	How Words Mean	1732	R 3	Mathematics--Total Mathematics	1963
	How Words are Used	1733	S 3	Reading--Total Reading	2061
	How Words are Spelled	1734	S 3	Language--Total Language	2062
			S 3	Mathematics--Total Mathematics	2063
			T 3	Reading--Total Reading	2161
			T 3	Language--Total Language	2162
			T 3	Mathematics--Total	
				Mathematics	2163

Form and level	Name of test	Code	Form and level	Name of test	Code
Q 4	Reading--Total Reading	1871	5 7	Language--Listening	2912
Q 4	Language--Total Language	1872	5 7	Mathematics--Mathematics Skills	2913
Q 4	Mathematics--Total Mathematics	1873	6 7	Reading--Reading Comprehension	3011
R 4	Reading--Total Reading	1971	6 7	Language--Listening	3012
R 4	Language--Total Language	1972	6 7	Mathematics--Mathematics Skills	3013
R 4	Mathematics--Total Mathematics	1973			
S 4	Reading--Total Reading	2071	5 8	Reading--Reading Comprehension	2921
S 4	Language--Total Language	2072	5 8	Language--Listening	2922
S 4	Mathematics--Total Mathematics	2073	5 8	Mathematics--Mathematics Skills	2923
T 4	Reading--Total Reading	2171	6 8	Reading--Reading Comprehension	3021
T 4	Language--Total Language	2172	6 8	Language--Listening	3022
T 4	Mathematics--Total Mathematics	2173	6 8	Mathematics--Mathematics Skills	3023
	<i>Cooperative Primary Tests, 1965 (ETS)</i>		5 9	Reading--Reading Comprehension	2931
12-A	Reading--Reading	2211	5 9	Language--Listening	2932
12-A	Language--Listening	2212	5 9	Mathematics--Mathematics Skills	2933
12-A	Mathematics--Mathematics	2213	6 9	Reading--Reading Comprehension	3031
12-B	Reading--Reading	2311	6 9	Language--Listening	3032
12-B	Language--Listening	2312	6 9	Mathematics--Mathematics Skills	3033
12-B	Mathematics--Mathematics	2313			
23-A	Reading--Reading	2221	5 10	Reading--Reading Comprehension	2941
23-A	Language--Listening	2222	5 10	Language--Language Skills	2942
23-A	Mathematics--Mathematics	2223	6 10	Mathematics--Mathematics Skills	2943
23-B	Reading--Reading	2321	6 10	Reading--Reading Comprehension	3041
23-B	Language--Listening	2322	6 10	Language--Language Skills	3042
23-B	Mathematics--Mathematics	2323	6 10	Mathematics--Mathematics Skills	3043
	<i>Dailey Language Facility Test (AC)</i>	2452	5 11	Reading--Reading Comprehension	2951
	<i>Denver Developmental Screening Test (LADOCA)</i>		5 11	Language--Language Skills	2952
	Preschool	2500	5 11	Mathematics--Mathematics Skills	2953
	<i>Gates-MacGinitie Reading Tests (TCP)</i>		6 11	Reading--Reading Comprehension	3051
1	Reading Readiness Skills	2601	6 11	Language--Language Skills	3052
			6 11	Mathematics--Mathematics Skills	3053
1 Primary A	Reading (Comprehension)	2611	5 12	Reading--Reading Comprehension	2961
1 Primary B		2621	5 12	Language--Language Skills	2962
1 Primary C		2631	5 12	Mathematics--Mathematics Skills	2963
1 Primary CS (Speed and accuracy)		2641	6 12	Reading--Reading Skills	3061
2 Primary A	Reading (Comprehension)	2711	6 12	Language--Language Skills	3062
2 Primary B		2721	6 12	Mathematics--Mathematics Skills	3063
2 Primary C		2731	5 13	Reading--Reading Comprehension	2971
2 Primary CS (Speed and accuracy)		2741	5 13	Language--Language Skills	2972
			5 13	Mathematics--Mathematics Skills	2973
3 Primary CS Reading (Speed and accuracy)		2841	6 13	Reading--Reading Comprehension	3071
1 Survey D	Reading (Comprehension)	2651	6 13	Language--Language Skills	3072
1 Survey E		2661	6 13	Mathematics--Mathematics Skills	3073
1 Survey F		2671	5 14	Reading--Reading Comprehension	2981
2 Survey D	Reading (Comprehension)	2751	5 14	Language--Language Skills	2982
2 Survey E		2761	5 14	Mathematics--Mathematics Skills	2983
2 Survey F		2771	6 14	Reading--Reading Comprehension	3081
3 Survey D	Reading (Comprehension)	2851	6 14	Language--Language Skills	3082
3 Survey E		2861	6 14	Mathematics--Mathematics Skills	3083
3 Survey F		2871			
	<i>Iowa Test of Basic Skills (ITBS) (HMC)</i>			<i>Metropolitan Achievement Test, 1971 (HBJ)</i>	
5 7	Reading--Reading Comprehension	2911	F Primer	Reading--Reading	3111
			F Primer	Language--Listening for Sounds	3112

Form and level	Name of test	Code	Form and level	Name of test	Code
F Primer	Mathematics—Numbers	3113	H Interme- diate	Language—Language	3552
H Primer	Reading—Reading	3211	H Interme- diate	Mathematics—Total Mathematics	3553
H Primer	Language—Listening for Sounds	3212			
H Primer	Mathematics—Numbers	3213			
F Primary I	Reading—Total Reading	3321	F Advanced	Reading—Total Reading	3361
—	Language	—	F Advanced	Language—Language	3362
F Primary I	Mathematics—Total Mathematics	3323	F Advanced	Mathematics—Total Mathematics	3363
G Primary I	Reading—Total Reading	3421	G Advanced	Reading—Total Reading	3461
—	Language	—	G Advanced	Language—Language	3462
G Primary I	Mathematics—Total Mathematics	3423	G Advanced	Mathematics—Total Mathematics	3463
H Primary I	Reading—Total Reading	3521	H Advanced	Reading—Total Reading	3561
—	Language	—	H Advanced	Language—Language	3562
H Primary I	Mathematics—Total Mathematics	3523	H Advanced	Mathematics—Total Mathematics	3563
F Primary II	Reading—Total Reading	3331	F High School	Reading—Reading	3371
—	Language	—	F High School	Language—Language	3372
F Primary II	Mathematics—Total Mathematics	3333	F High School	Mathematics—Mathematics Compu- tation and Concepts	3373
G Primary II	Reading—Total Reading	3431	G High School	Reading—Reading	3471
—	Language	—	G High School	Language—Language	3472
G Primary II	Mathematics—Total Mathematics	3433	G High School	Mathematics—Mathematics Compu- tation and Concepts	3473
H Primary II	Reading—Total Reading	3531	H High School	Reading—Reading	3571
—	Language	—	H High School	Language—Language	3572
H Primary II	Mathematics—Total Mathematics	3533	H High School	Mathematics—Mathematics Compu- tation and Concepts	3573
F Elemen- tary	Reading—Total Reading	3341		<i>Metropolitan Readiness Test (HBJ)</i>	
F Elemen- tary	Language—Language	3342	A	Reading—Alphabet	3611
F Elemen- tary	Mathematics—Total Mathematics	3343	A	Language—Listening	3612
G Elemen- tary	Reading—Total Reading	3441	B	Mathematics—Numbers	3613
G Elemen- tary	Language—Language	3442	B	Reading—Alphabet	3721
G Elemen- tary	Mathematics—Total Mathematics	3443	B	Language—Listening	3722
H Elemen- tary	Reading—Total Reading	3541	B	Mathematics—Numbers	3723
H Elemen- tary	Language—Language	3542		<i>Metropolitan Readiness Test, 1976 ed.</i>	
H Elemen- tary	Mathematics—Total Mathematics	3543	P 1	Reading—Letter Recognition	3811
F Interme- diate	Reading—Total Reading	3351	P 1	Language—Listening	3812
F Interme- diate	Language—Language	3352	P 1	Mathematics—Quantitative Concepts	3813
F Interme- diate	Mathematics—Total Mathematics	3353	Q 1	Reading—Letter Recognition	3911
G Interme- diate	Reading—Total Reading	3451	Q 1	Language—Listening	3912
G Interme- diate	Language—Language	3452	Q 1	Mathematics—Quantitative Concepts	3913
G Interme- diate	Mathematics—Total Mathematics	3453	P 2	Reading—Sound Letter Correspond- ence	3821
H Interme- diate	Reading—Total Reading	3551	P 2	Language—Listening	3822
			P 2	Mathematics—Quantitative Concepts	3823
			Q 2	Reading—Sound Letter Correspond- ence	3921
			Q 2	Language—Listening	3922
			Q 2	Mathematics—Quantitative Concepts	3923

Form and level	Name of test	Code	Form and level	Name of test	Code
A B C D	<i>Nelson Denny Reading Test (HMC)</i>		A Intermediate II A Intermediate II B Intermediate II B Intermediate II	Language—Total Auditory	4852
	Reading	4011		Mathematics—Total Mathematics	4853
		4111		Reading—Total Reading	4951
		4211		Language—Total Auditory	4952
A B	<i>Nelson Reading Test</i>		B Intermediate II	Mathematics—Total Mathematics	4953
	Reading	4411			
		4511			
	<i>Preschool Attainment Record (AGS)</i>	4600			
	<i>Screening Test for Auditory Comprehension of Language (Bilingual) (DC)</i>	4702	A Advanced	Reading—Total Reading	4861
	<i>Stanford Achievement Test, 1973 (SAT) (HBJ)</i>		A Advanced	Language—Language	4862
A Primary I	Reading—Total Reading	4811	A Advanced	Mathematics—Total Mathematics	4863
A Primary I	Language—Total Auditory	4812	B Advanced	Reading—Total Reading	4961
A Primary I	Mathematics—Total Mathematics	4813	B Advanced	Language—Language	4962
B Primary I	Reading—Total Reading	4911	B Advanced	Mathematics—Total Mathematics	4963
B Primary I	Language—Total Auditory	4912			
B Primary I	Mathematics—Total Mathematics	4913			
A Primary II	Reading—Total Reading	4821		High School	
A Primary II	Language—Total Auditory	4822		Forms A and B Task	
A Primary II	Mathematics—Total Mathematics	4823	1	Reading	5071
B Primary II	Reading—Total Reading	4921	1	English	5072
B Primary II	Language—Total Auditory	4922	1	Mathematics	5073
B Primary II	Mathematics—Total Mathematics	4923	2	Reading	5081
			2	English	5082
			2	Mathematics	5083
A Primary III	Reading—Total Reading	4831		<i>Stanford Early School Achievement Test (SESAT) (HBJ)</i>	
A Primary III	Language—Total Auditory	4832	1	Reading—Letters and Sounds	5111
A Primary III	Mathematics—Total Mathematics	4833	1	Language—Aural Comprehension	5112
B Primary III	Reading—Total Reading	4931	1	Mathematics—Mathematics	5113
B Primary III	Language—Total Auditory	4932	2	Reading—Letters and Sounds	5121
B Primary III	Mathematics—Total Mathematics	4933	2	Language—Aural Comprehension	5122
			2	Mathematics—Mathematics	5123
A Intermediate I	Reading—Total Reading	4841		<i>SRA Achievement Tests (SRA)</i>	
A Intermediate I	Language—Total Auditory	4842	E Primary I	Reading—Reading	5211
A Intermediate I	Mathematics—Total Mathematics	4843	E Primary I	Language—Language Arts	5212
B Intermediate I	Reading—Total Reading	4941	E Primary I	Mathematics—Mathematics	5213
B Intermediate I	Language—Total Auditory	4942	F Primary I	Reading—Reading	5311
B Intermediate I	Mathematics—Total Mathematics	4943	F Primary I	Language—Language Arts	5312
			F Primary I	Mathematics—Mathematics	5313
A Intermediate II	Reading—Total Reading	4851	E Primary II	Reading—Reading	5221
			E Primary II	Language—Language Arts	5222
			E Primary II	Mathematics—Mathematics	5223
			F Primary II	Reading—Reading	5321
			F Primary II	Language—Language Arts	5322
			F Primary II	Mathematics—Mathematics	5323
			E Blue	Reading—Reading	5231
			E Blue	Language—Language Arts	5232
			E Blue	Mathematics—Mathematics	5233
			F Blue	Reading—Reading	5331

Form and level	Name of test	Code	Form and level	Name of test	Code
F Blue	Language--Language Arts	5332	K K K L L L	<b>Test of Basic Experiences (TOBE) (CTB)</b>	
F Blue	Mathematics--Mathematics	5333		Reading--Language	5411
E Green	Reading--Reading	5241		Language--Language	5412
E Green	Language--Language Arts	5242		Mathematics--Mathematics	5413
E Green	Mathematics--Mathematics	5243		Reading--Language	5421
F Green	Reading--Reading	5341		Language--Language	5422
F Green	Language--Language Arts	5342		Mathematics--Mathematics	5423
F Green	Mathematics--Mathematics	5343	<b>Other</b>		
E Red	Reading--Reading	5251	(Specify the test, form, and level used on the reverse side of the Test Results sheet.)		
E Red	Language--Language Arts	5252	Preschool		
E Red	Mathematics--Mathematics	5253	Reading		
F Red	Reading--Reading	5351	Language		
F Red	Language--Language Arts	5352	Mathematics		
F Red	Mathematics--Mathematics	5353			

APPENDIX A

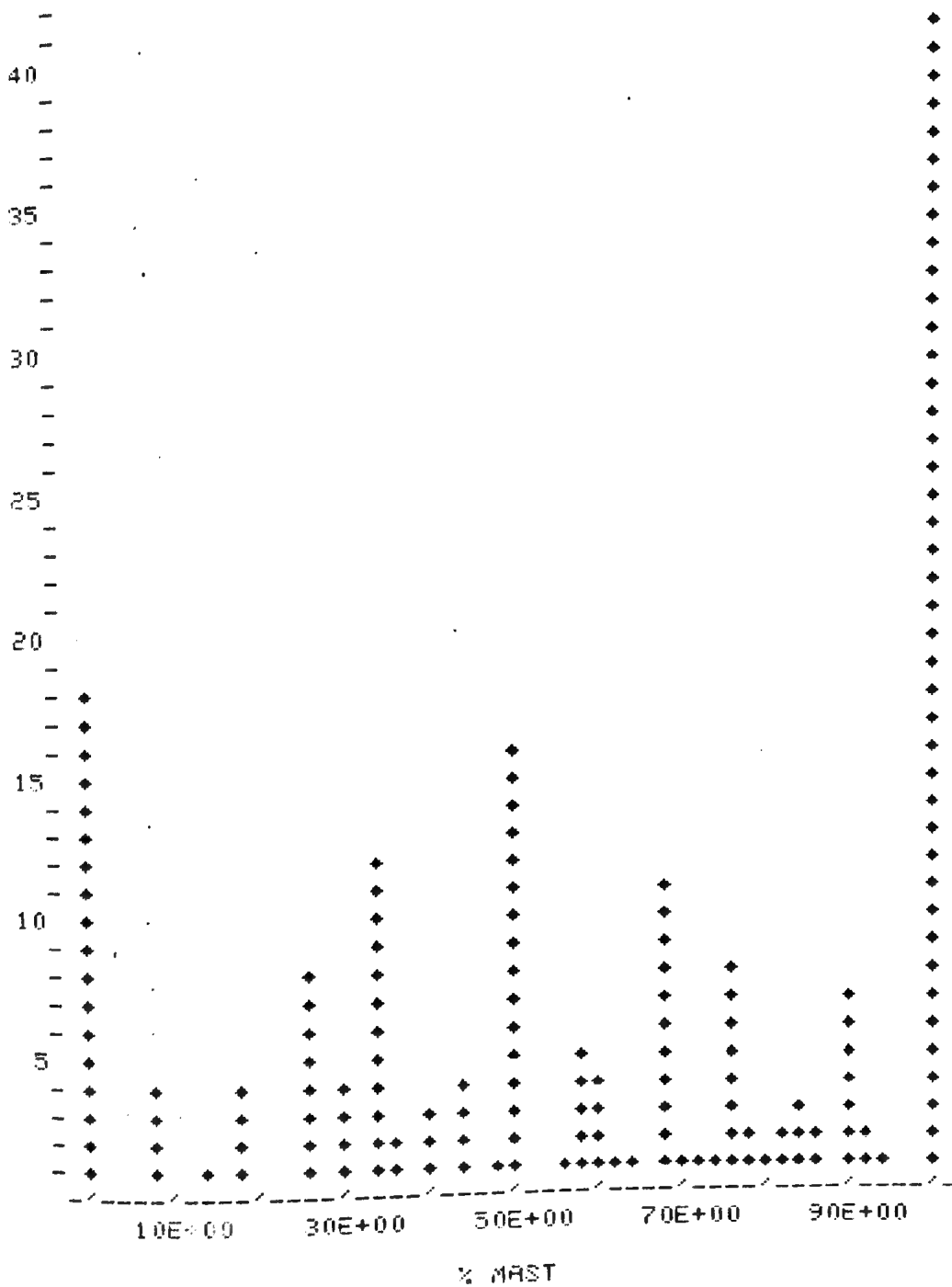
SUPPLEMENTARY EVALUATION DATA  
QUARTERLY PROGRESS EVALUATION DATA  
AND  
END OF YEAR EVALUATION DATA  
(COMBINED AND BY SCHOOL)  
FOR  
OBJECTIVE 1.0  
(ONGOING CRT MASTERY TEST OBJECTIVE)

COMBINED DISTRIBUTIONS OF PERCENT MASTERY  
OF MATH OBJECTIVES "MASTERED VS INSTRUCTED"

ALL TELEMATH SCHOOLS GRADE 4  
1ST QUARTER DATA 1976-77

HISTOGRAM.

ABS. FREQ.



MEAN = 59.0867  
STD. DEV. = 33.7603  
SAMPLE SIZE = 173



COMBINED DISTRIBUTIONS OF PERCENT MASTERY  
OF MATH OBJECTIVES "MASTERED VS INSTRUCTED"

ALL TELEMATH SCHOOLS GRADE 5  
1ST QUARTER DATA 1976-77

> HIST

♦ VARIABLE : 1

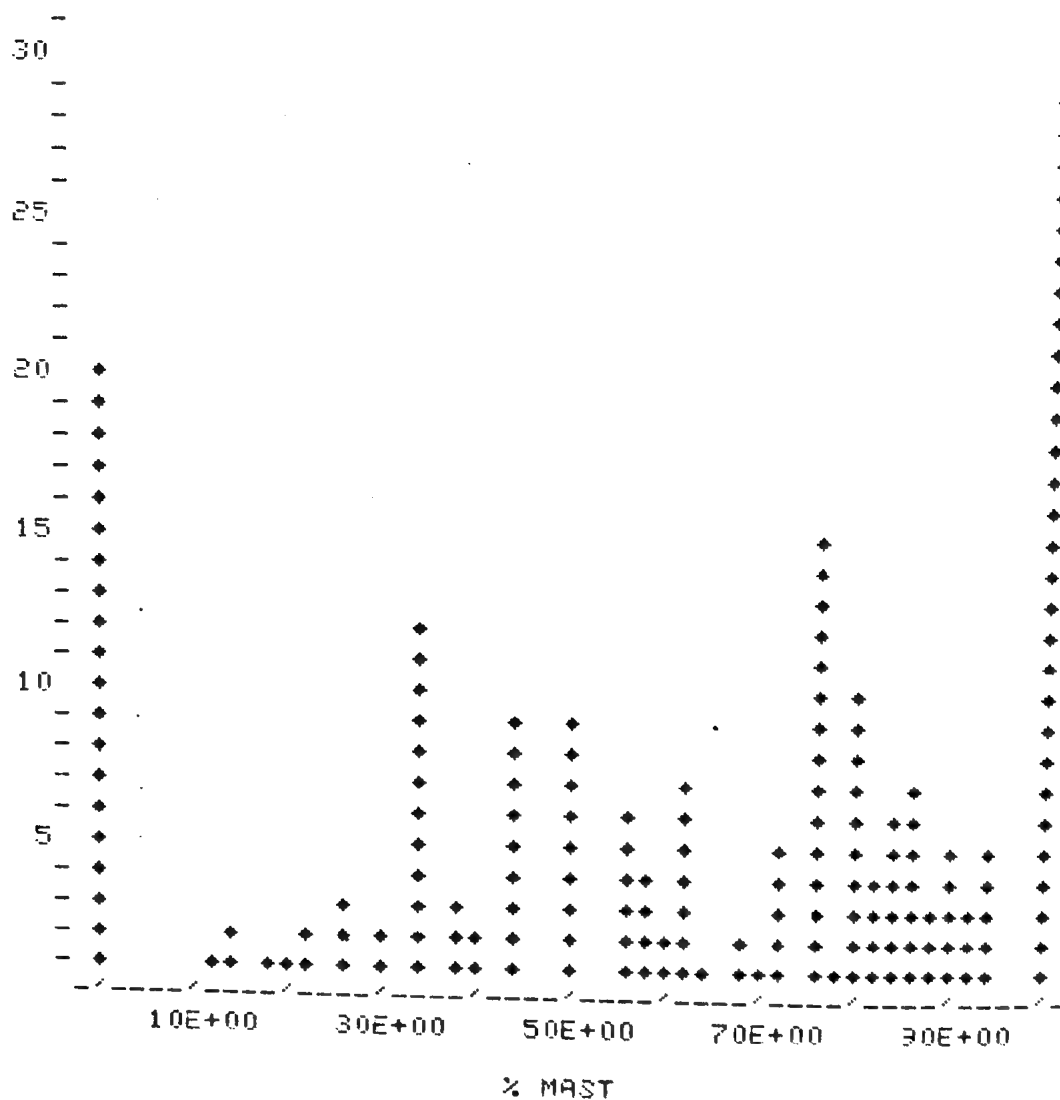
MIN. OBS. = 0      MAX. OBS. = 100  
MEAN = 61.6487      STD. DEV. = 31.9528  
SAMPLE SIZE = 185

♦ MIDPOINT: 50

♦ WIDTH OF INTERVAL: 2

HISTOGRAM

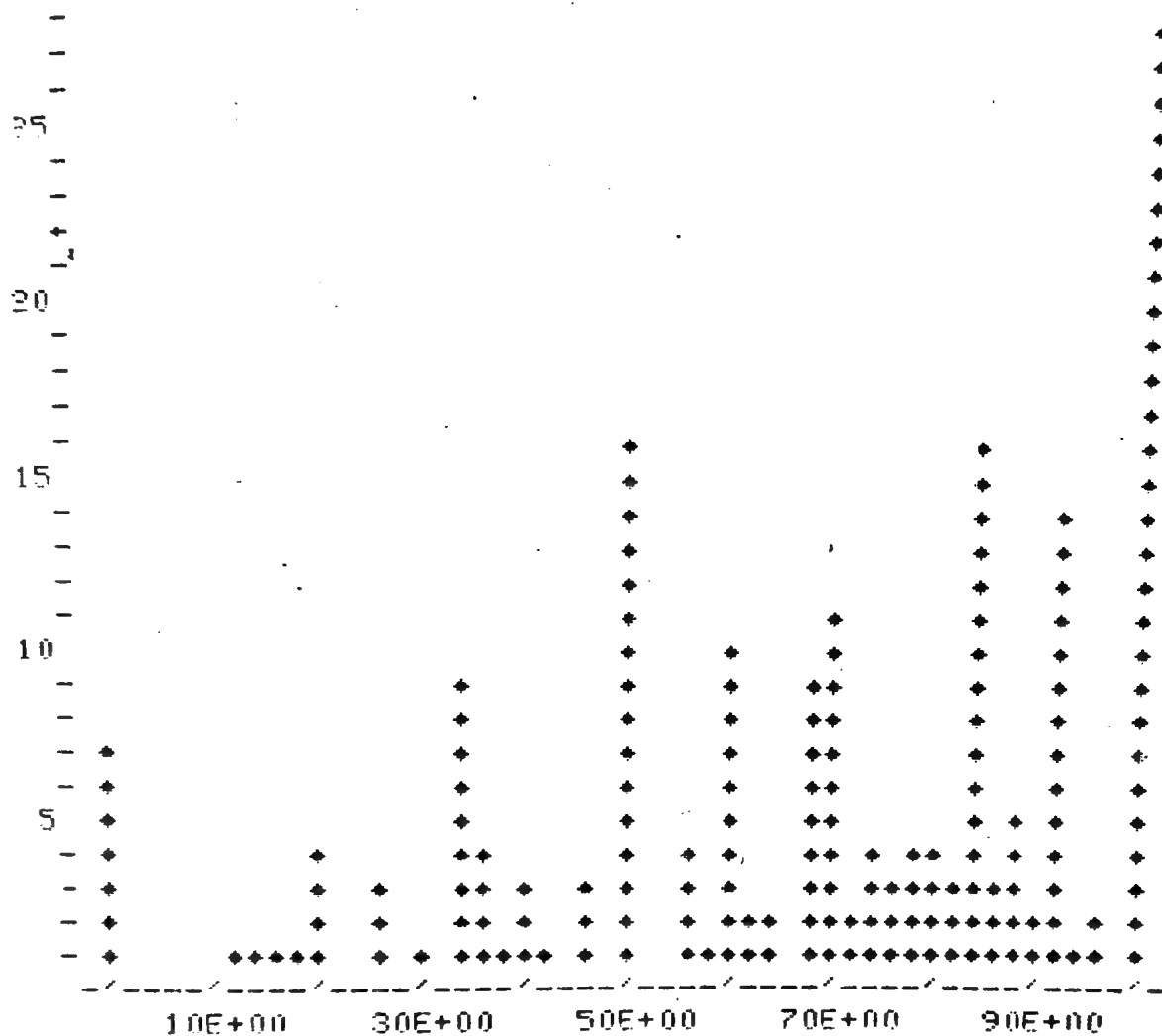
ABS. FREQ.



MEAN = 61.6487  
STD. DEV. = 31.9528  
SAMPLE SIZE = 185

GRADE 4  
2ND QUARTER DATA  
1976-77

ABS. FREQ.,

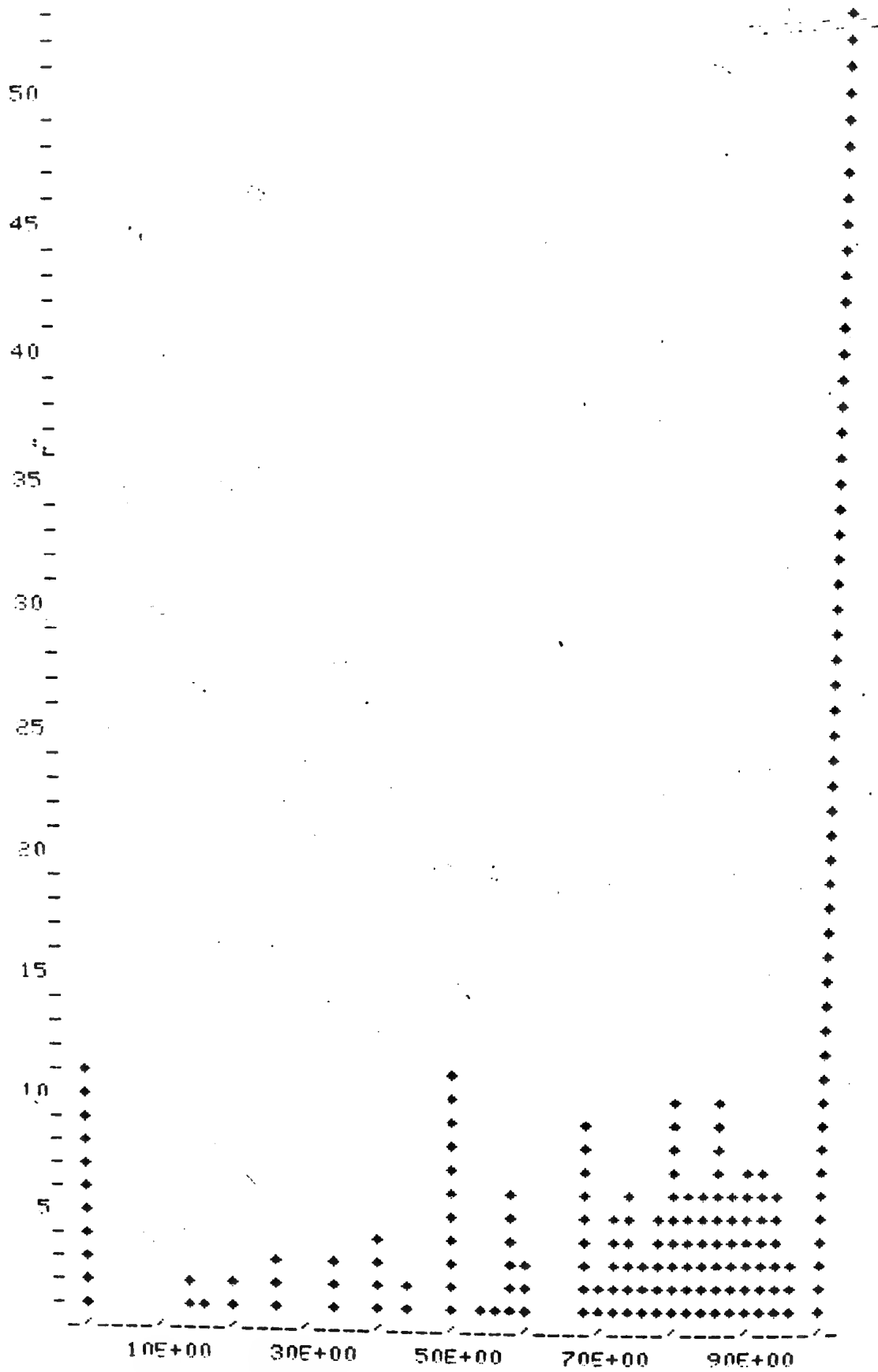


% MAST

MEAN = 66.7527  
STD. DEV. = 26.9471  
SAMPLE SIZE = 186

GRADE 5 2ND QUARTER DATA, 1976-77

ABS. FREQ.

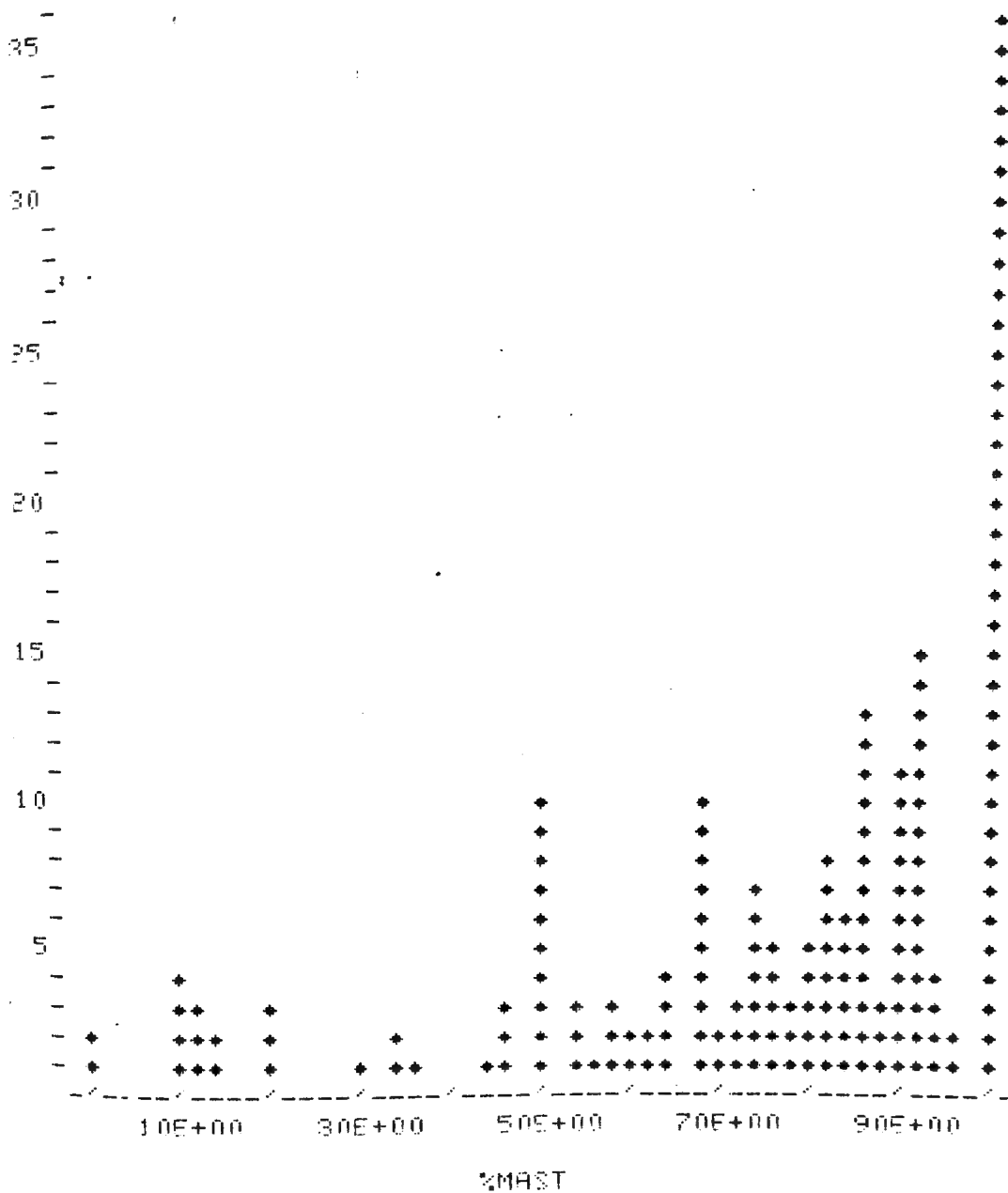


MEAN = 74.3196  
STD. DEV. = 28.0959

GRADE 4  
3RD QUARTER DATA, 1976-77

HISTOGRAM

ABS. FREQ.

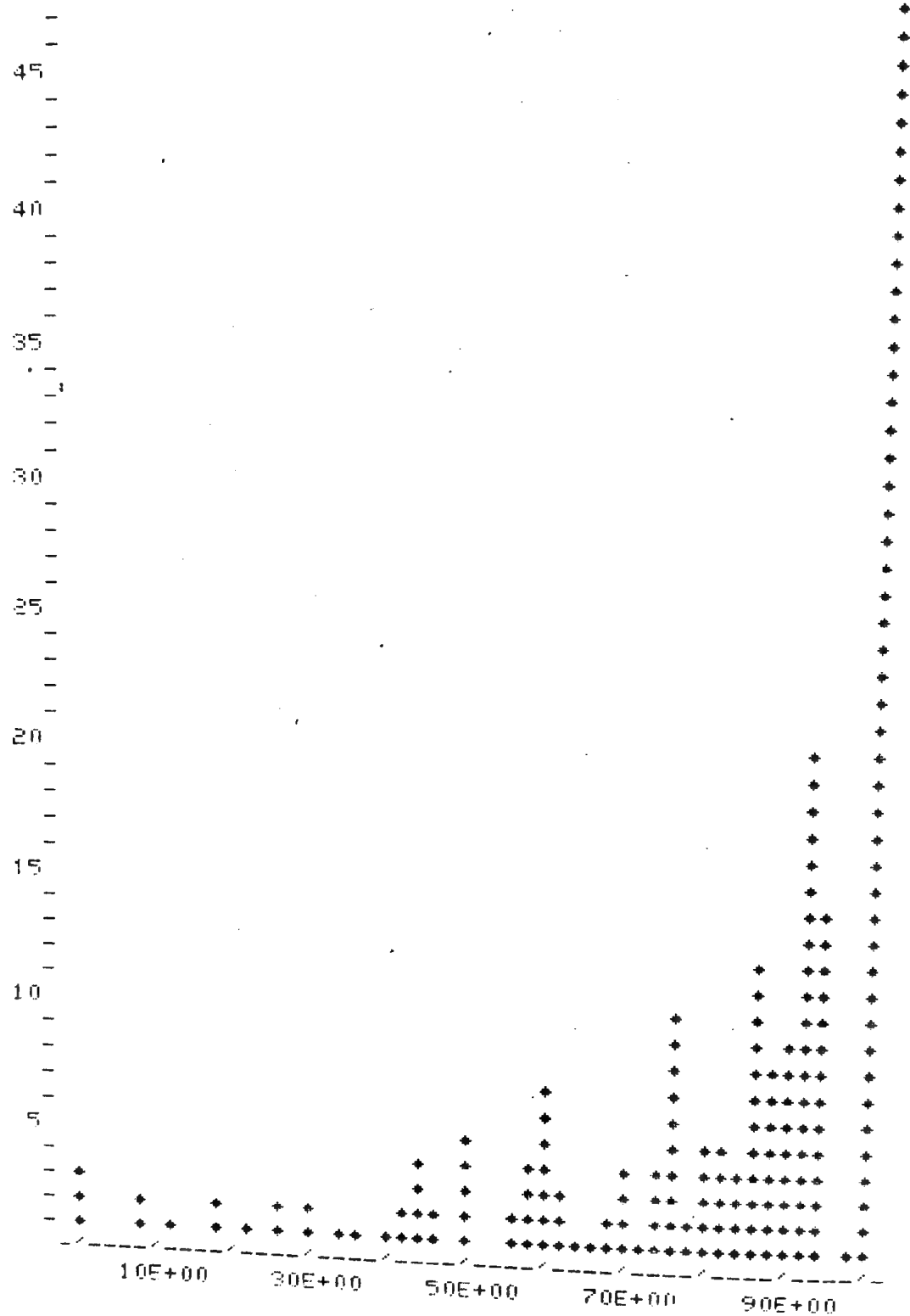


MEAN = 74.6889  
STD. DEV. = 25.0607  
SAMPLE SIZE = 190

GRADE 5  
3RD QUARTER DATA, 1976-77

HISTOGRAM

ABS. FREQ.



MEAN = 79.2769  
STD. DEV. = 24.0083  
SAMPLE SIZE = 195

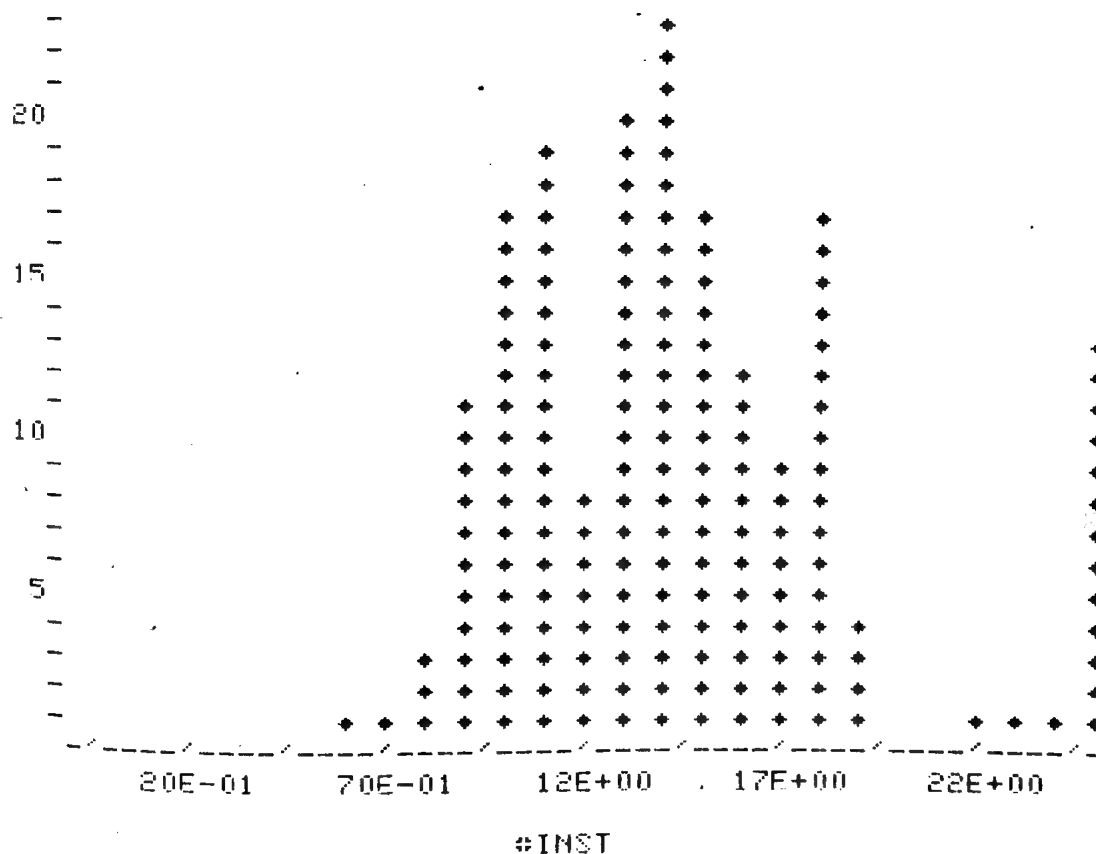
TELEMATH GROUP - GRADE 4  
4TH QUARTER DATA, 1976-77

MIN. OBS. = 6      MAX. OBS. = 46  
MEAN = 15.073      STD. DEV. = 6.45543  
SAMPLE SIZE = 178

- ♦ MIDPOINT: 12
- ♦ WIDTH OF INTERVAL: .5
- 130-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 133-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 134-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 135-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 137-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 139-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 140-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 141-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 142-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 143-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 144-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL

HISTOGRAM

ABS. FREQ.



MEAN = 15.073  
STD. DEV. = 6.45543  
SAMPLE SIZE = 178

TELEMATH GROUP - GRADE 4 (CONTINUED)

MIN. OBS. = 1      MAX. OBS. = 45  
 MEAN = 12.5843      STD. DEV. = 7.24129  
 SAMPLE SIZE = 178

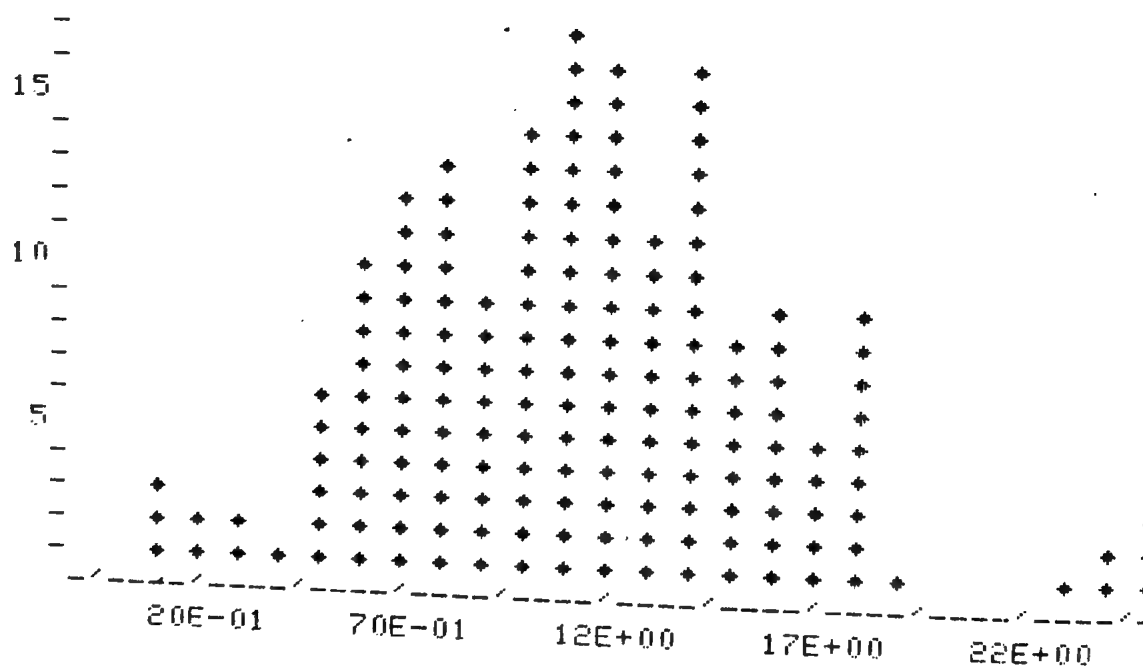
◆ MIDPOINT: 12

◆ WIDTH OF INTERVAL: .5

130-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 133-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 134-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 135-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 137-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 139-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 140-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 141-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 142-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 143-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 144-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL

HISTOGRAM

ABS. FREQ.

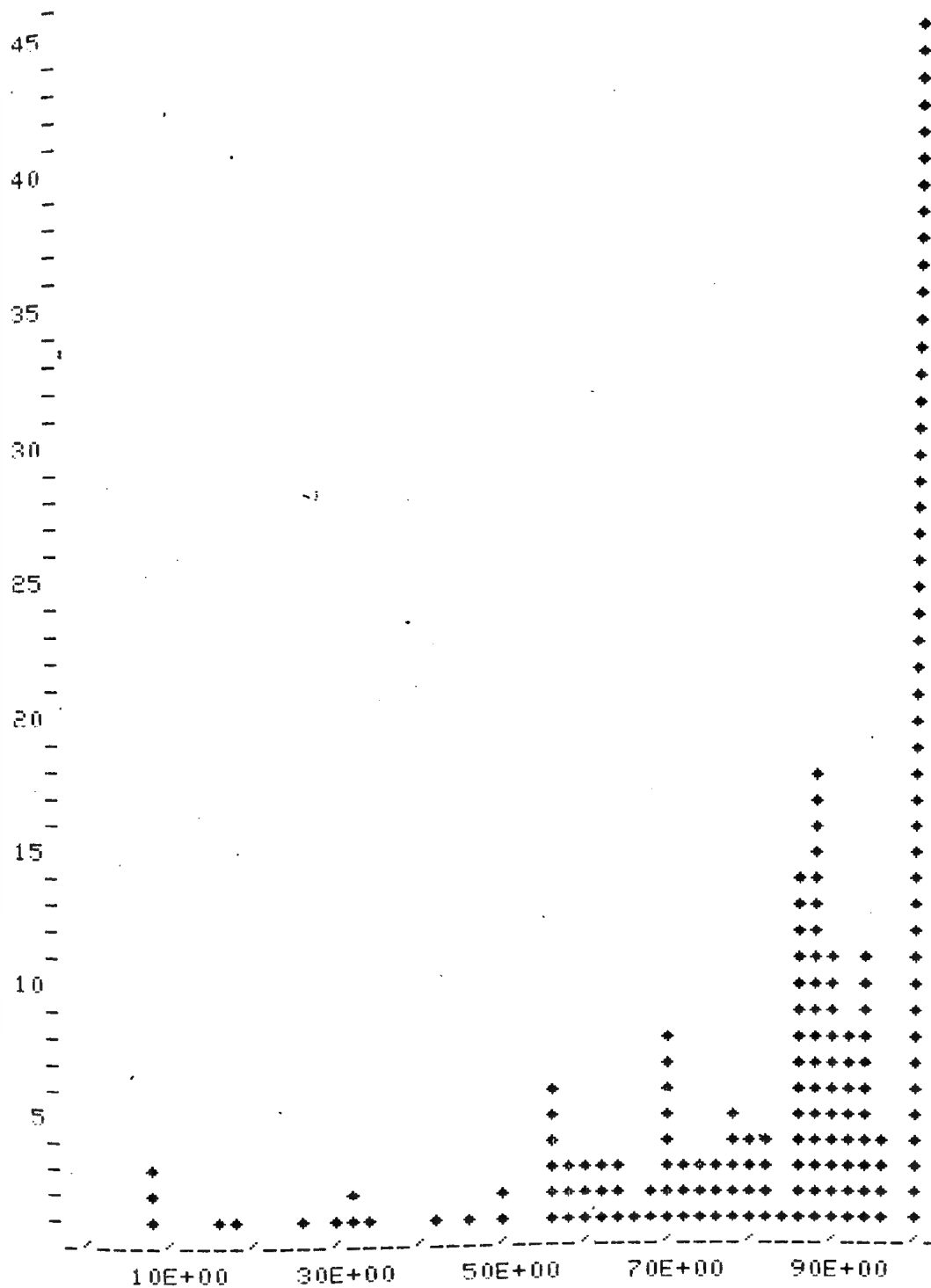


MEAN = 12.5843  
 STD. DEV. = 7.24129  
 SAMPLE SIZE = 178

TELEMATH GROUP - GRADE 4 (CONTINUED)

HISTOGRAM

ABS. FREQ.



%MAST

MEAN = 81.3933  
 STD. DEV. = 20.5974  
 SAMPLE SIZE = 178



TELEMATH GROUP - GRADE 5  
4TH QUARTER DATA, 1976-77

MIN. OBS. = 2      MAX. OBS. = 44  
MEAN = 15.5795      STD. DEV. = 6.04772  
SAMPLE SIZE = 195

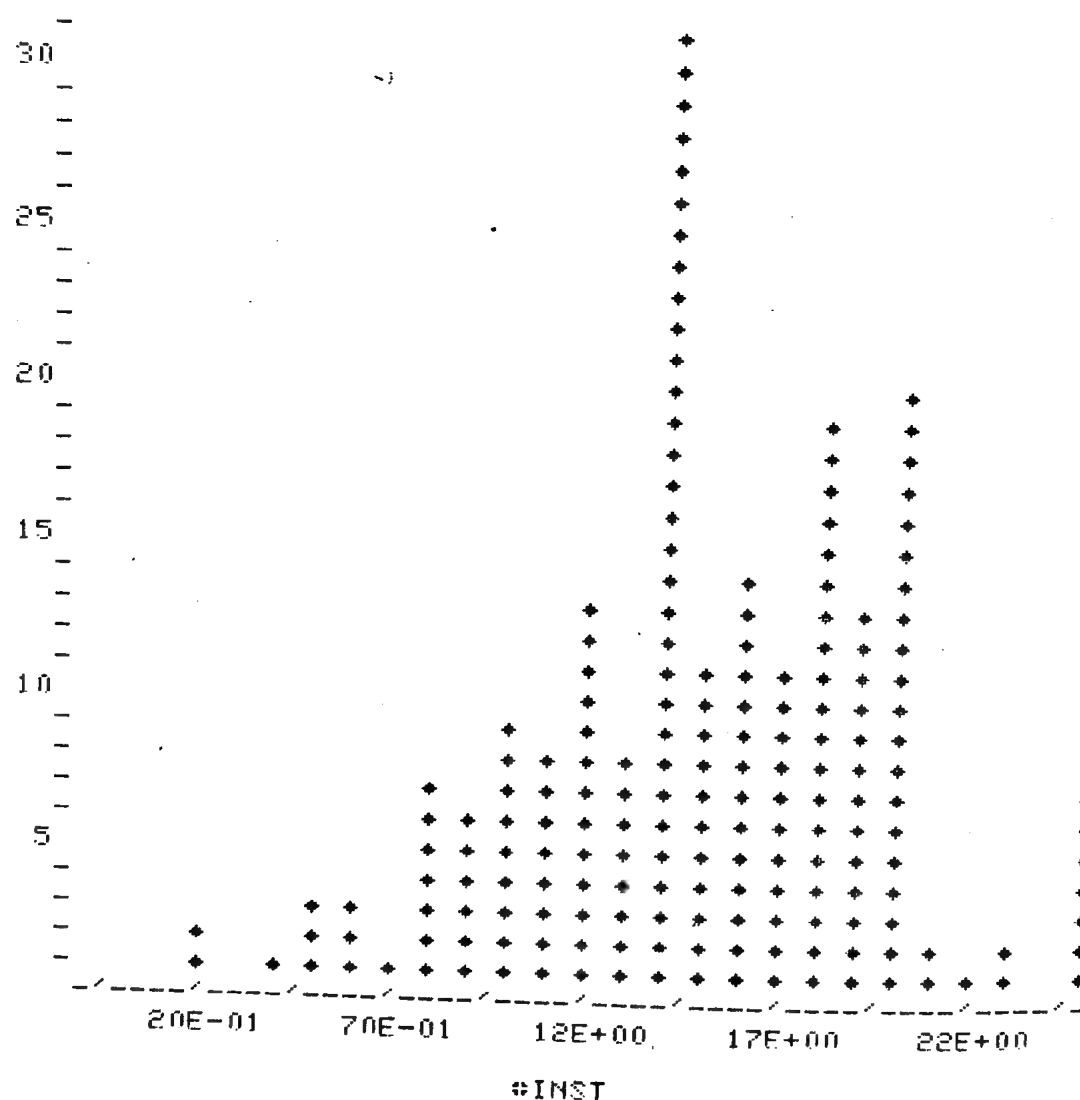
♦ MIDPOINT: 12

♦ WIDTH OF INTERVAL: .5

5-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
14-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
34-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
141-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
146-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
147-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
148-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
152-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
153-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
154-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL

HISTOGRAM

ABS. FREQ.



MEAN = 15.5795  
STD. DEV. = 6.04772  
SAMPLE SIZE = 195

# TELEMATH GROUP - GRADE 5 (CONTINUED)

MIN. OBS. = 0      MAX. OBS. = 41  
 MEAN = 13.0359      STD. DEV. = 7.04798  
 SAMPLE SIZE = 195

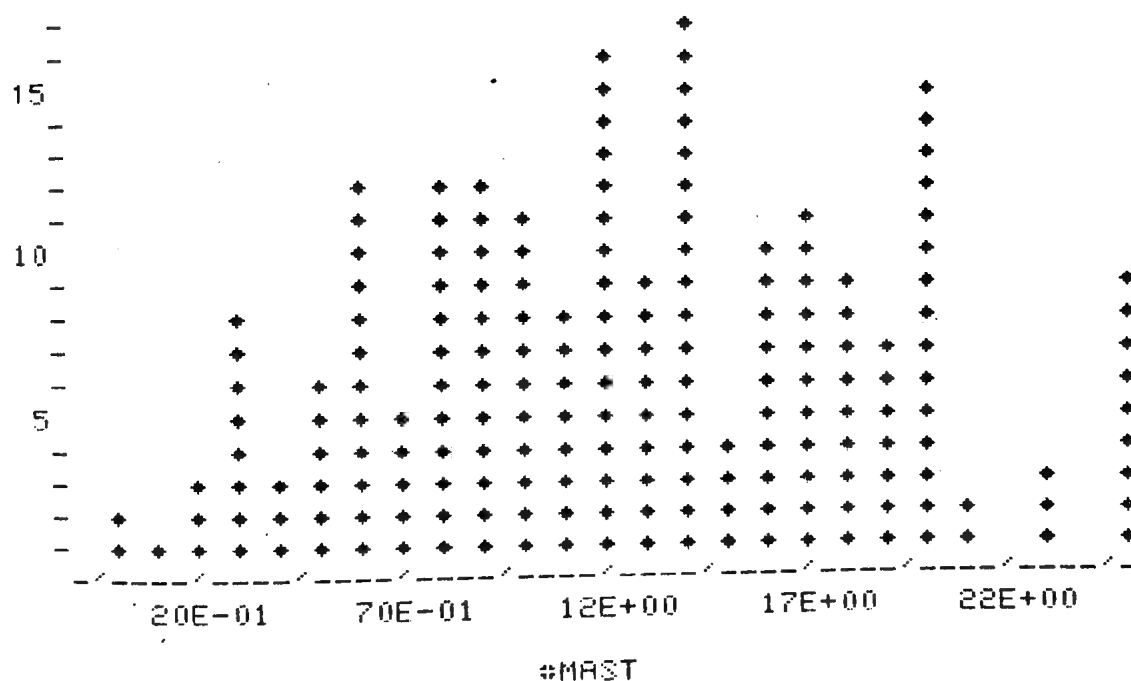
♦ MIDPOINT: 12

♦ WIDTH OF INTERVAL: .5

5-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 14-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 141-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 146-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 147-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 148-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 153-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 154-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL

## HISTOGRAM

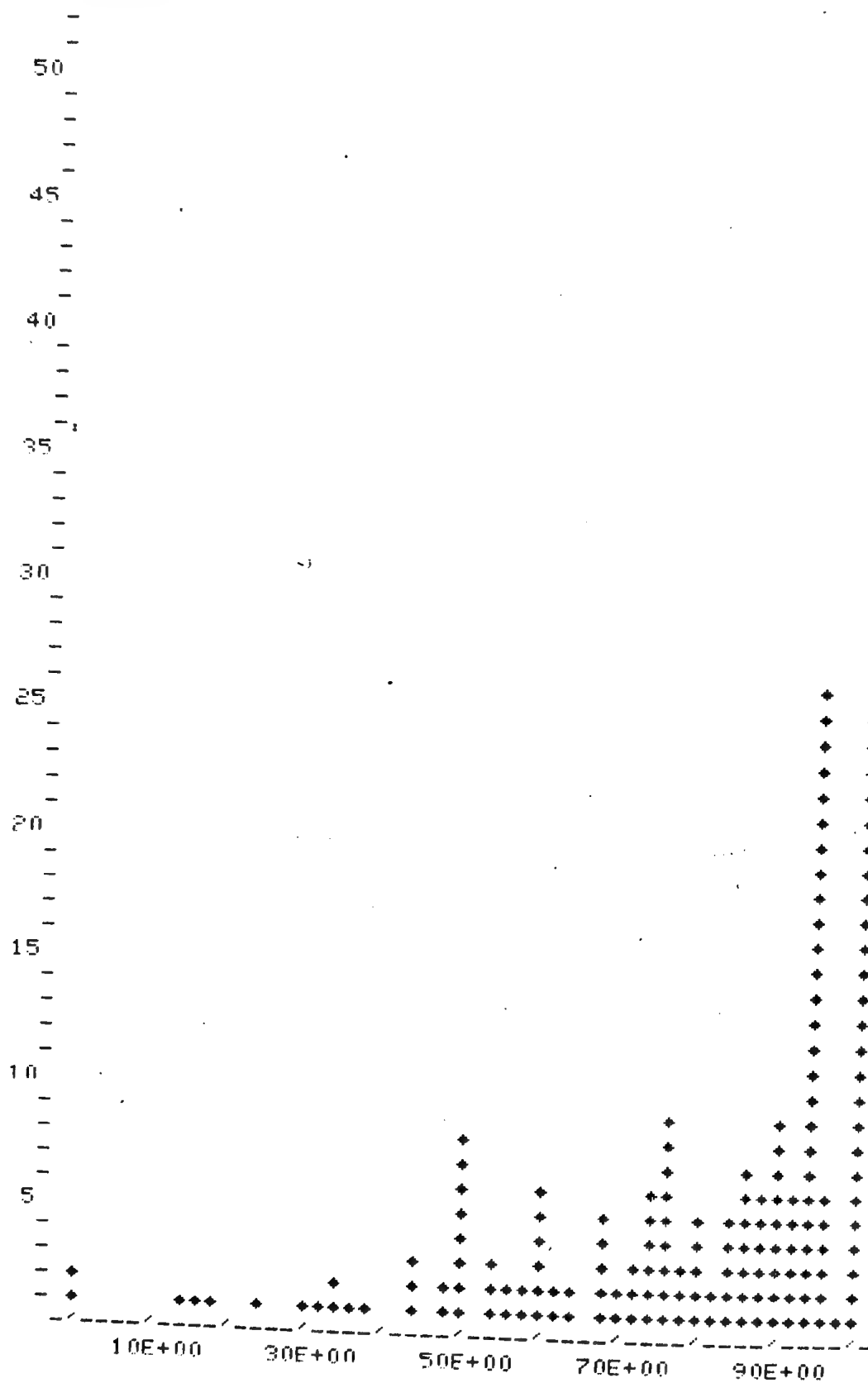
ABS. FREQ.



MEAN = 13.0359  
 STD. DEV. = 7.04798  
 SAMPLE SIZE = 195

TELEMATH GROUP - GRADE 5 (CONTINUED)

ABS. FREQ.



MEAN = 80.4462  
 STD. DEV. = 22.0562  
 SAMPLE SIZE = 195

%MAST

MIN  
 MEAN  
 SAMPLE

♦ MI  
 ♦ MT  
 2  
 2  
 2  
 2  
 3  
 3  
 3  
 3  
 3  
 3  
 3

HIST

ABS.

10

5

MEAN  
 STD.  
 SAMPLE

# HIGH ACHIEVING SCHOOLS - GRADE 4 4TH QUARTER DATA, 1976-77

MIN. OBS. = 9      MAX. OBS. = 46  
MEAN = 17.4306      STD. DEV. = 8.76746  
SAMPLE SIZE = 72

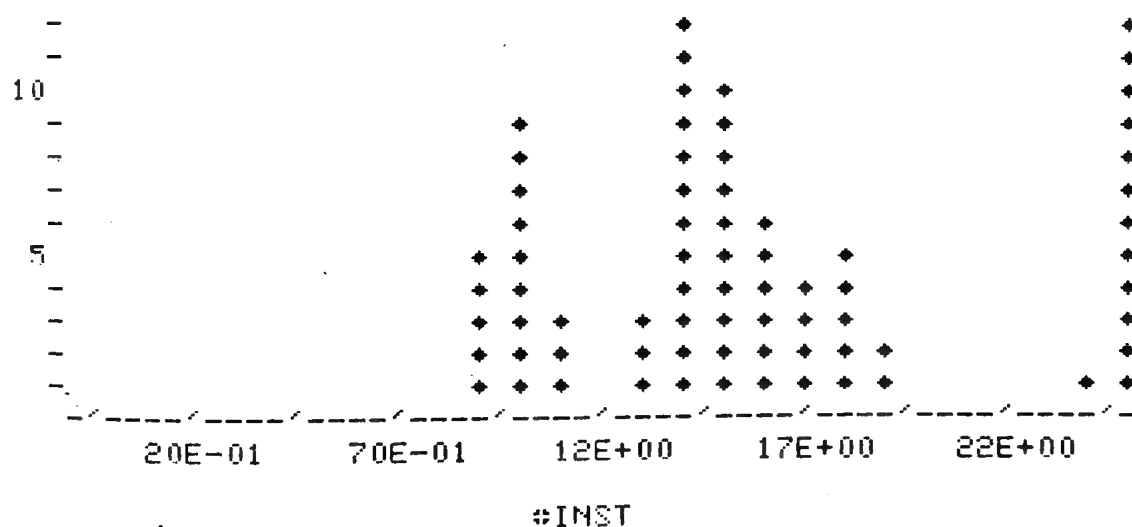
♦ MIDPOINT: 12

♦ WIDTH OF INTERVAL: .5

24-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
27-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
28-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
29-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
31-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
33-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
34-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
35-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
36-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
37-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
38-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL

## HISTOGRAM

ABS. FREQ.



MEAN = 17.4306  
STD. DEV. = 8.76746  
SAMPLE SIZE = 72

# HIGH ACHIEVING SCHOOLS - GRADE 4 (CONTINUED)

MIN. OBS. = 5      MAX. OBS. = 45  
 MEAN = 15.7222      STD. DEV. = 9.25571  
 SAMPLE SIZE = 72

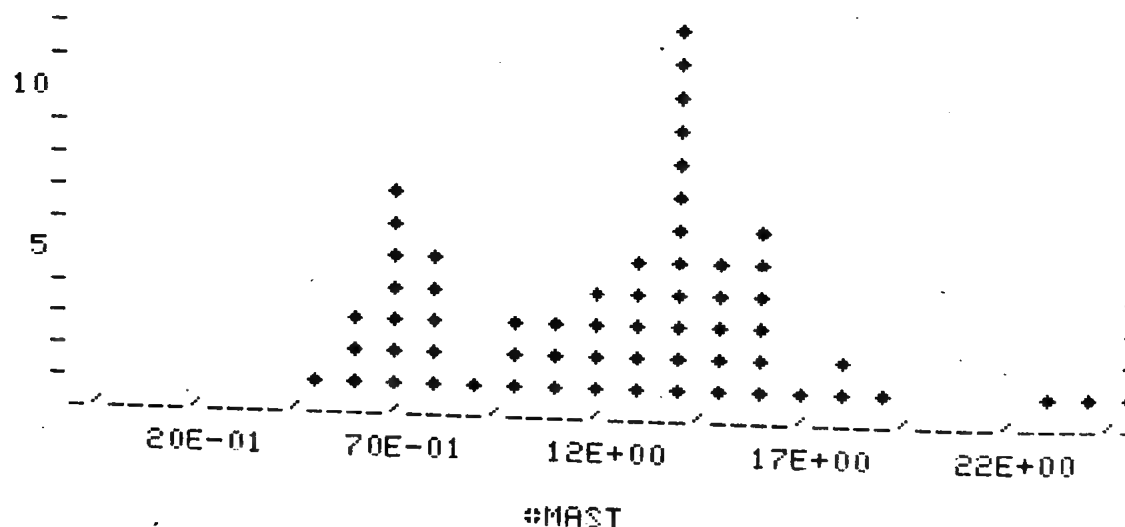
◆ MIDPOINT: 12

◆ WIDTH OF INTERVAL: .5

24-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 27-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 28-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 29-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 31-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 33-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 34-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 35-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 36-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 37-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 38-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL

## HISTOGRAM

ABS. FREQ.

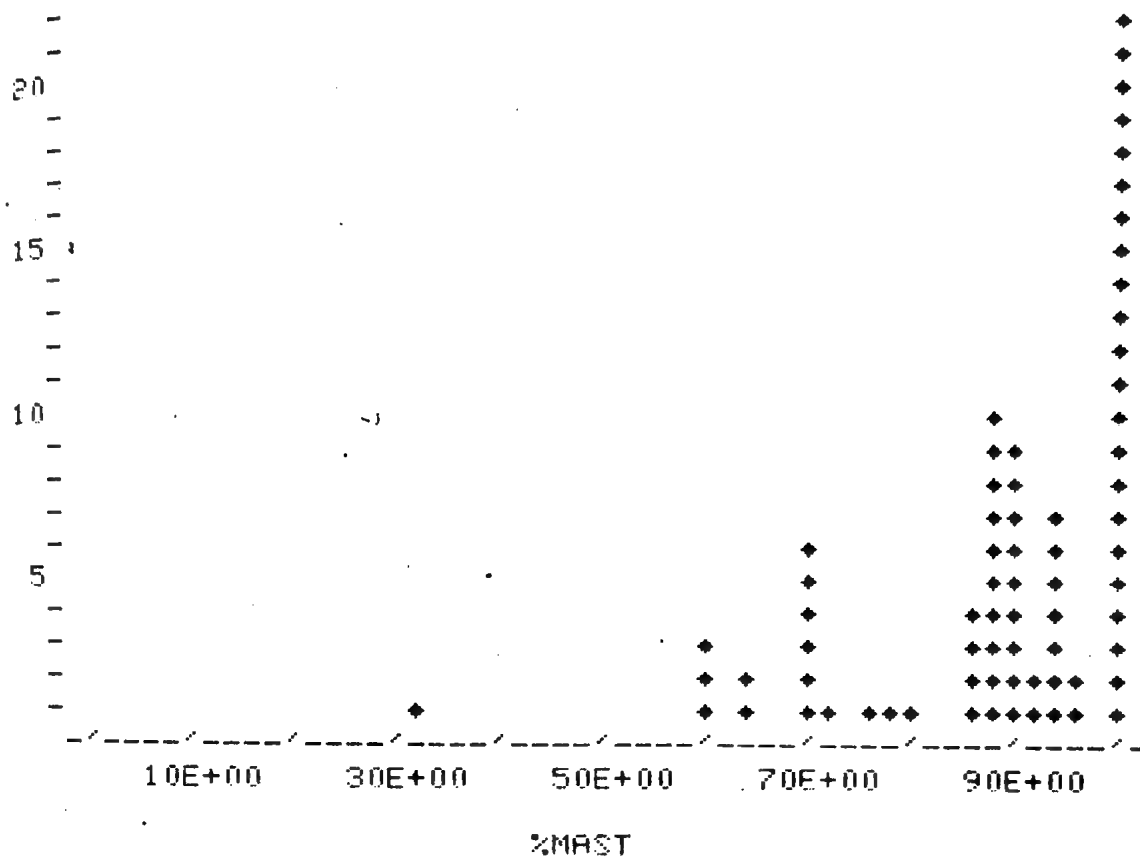


MEAN = 15.7222  
 STD. DEV. = 9.25571  
 SAMPLE SIZE = 72

# HIGH ACHIEVING SCHOOLS - GRADE 4 (CONTINUED)

HISTOGRAM

ABS. FREQ.



MEAN = 87.6111  
 STD. DEV. = 13.4641  
 SAMPLE SIZE = 72

# HIGH ACHIEVING SCHOOLS - GRADE 5 4TH QUARTER DATA, 1976-77

MIN. OBS. = 10    MAX. OBS. = 44  
 MEAN = 17.3864    STD. DEV. = 6.59925  
 SAMPLE SIZE = 88

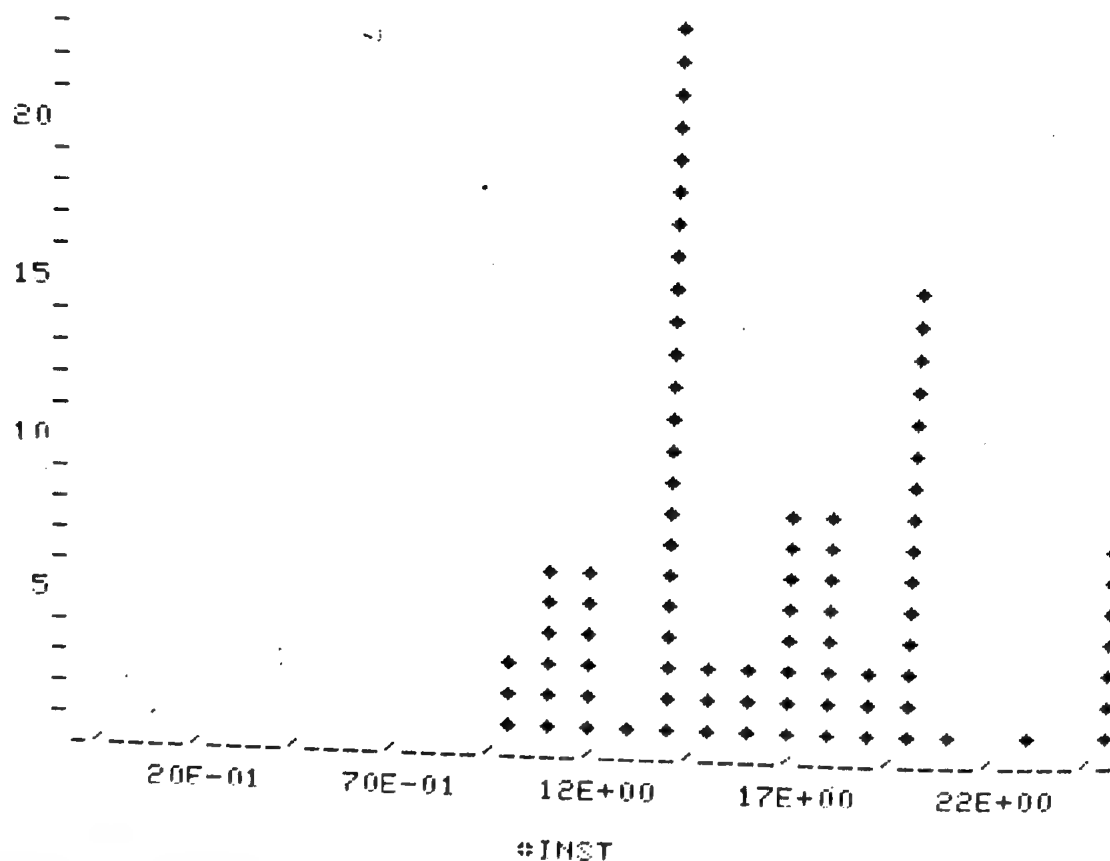
♦ MIDPOINT: 12

♦ WIDTH OF INTERVAL: .5

34-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 39-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 40-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 41-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 45-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 46-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL  
 47-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL

## HISTOGRAM

ABS. FREQ.



MEAN = 17.3864  
 STD. DEV. = 6.59925  
 SAMPLE SIZE = 88

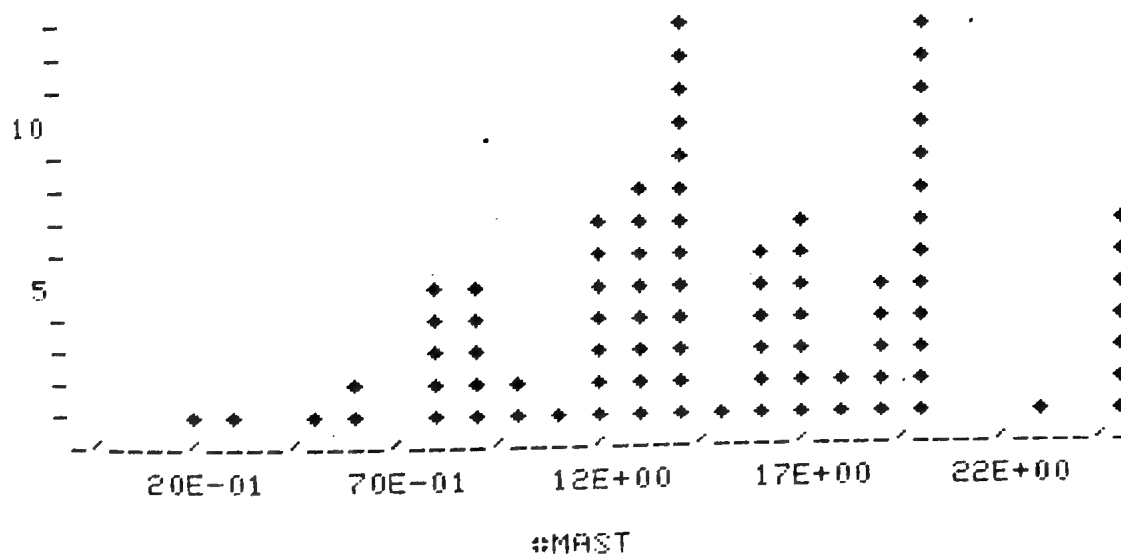
# HIGH ACHIEVING SCHOOLS - GRADE 5 (CONTINUED)

MIN. OBS. = 2      MAX. OBS. = 41  
 MEAN = 15.8864      STD. DEV. = 7.31937  
 SAMPLE SIZE = 88

- ♦ MIDPOINT: 12
- ♦ WIDTH OF INTERVAL: .5
- 34-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 39-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 40-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 41-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 45-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 46-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 47-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL

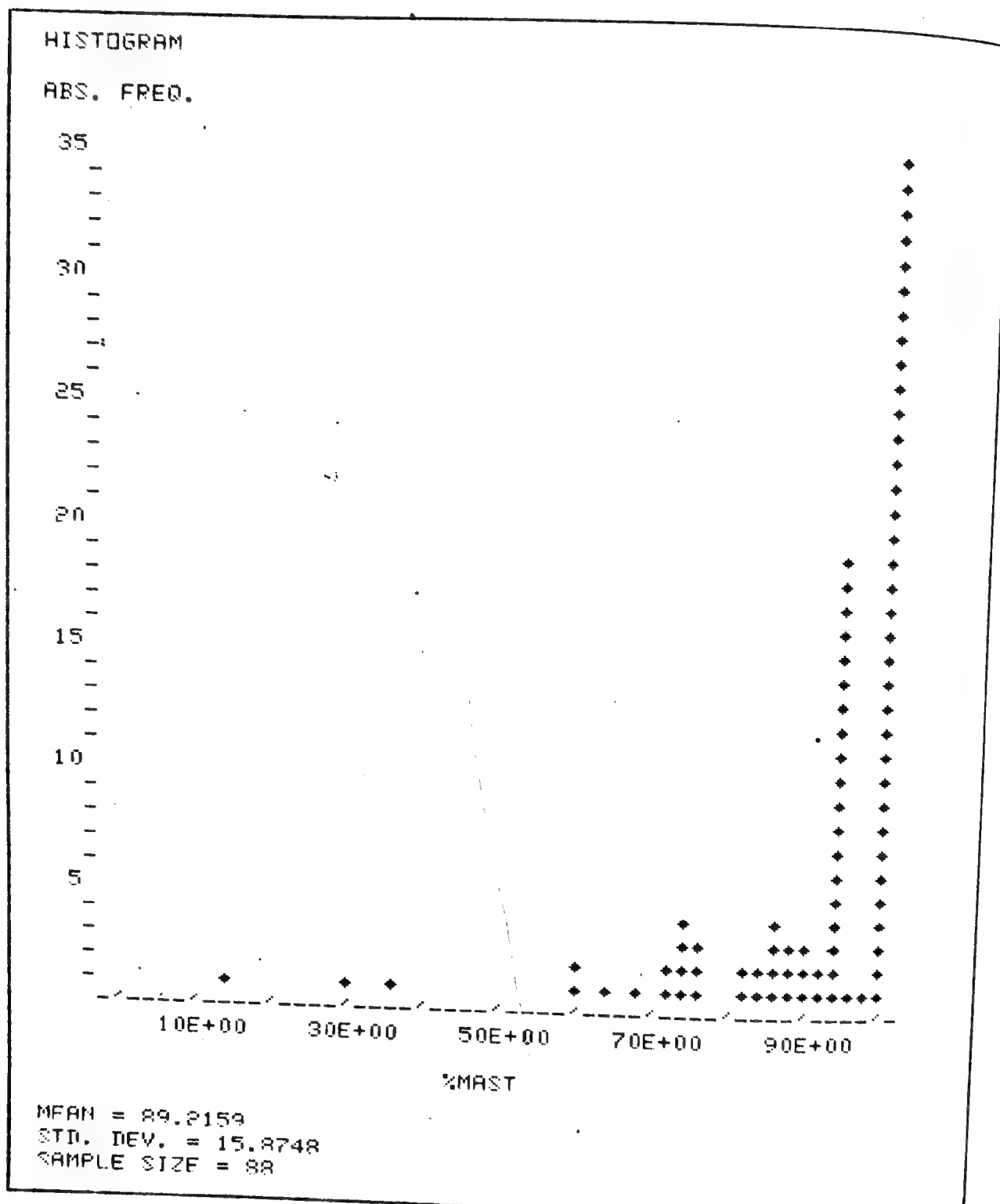
## HISTOGRAM

ABS. FREQ.





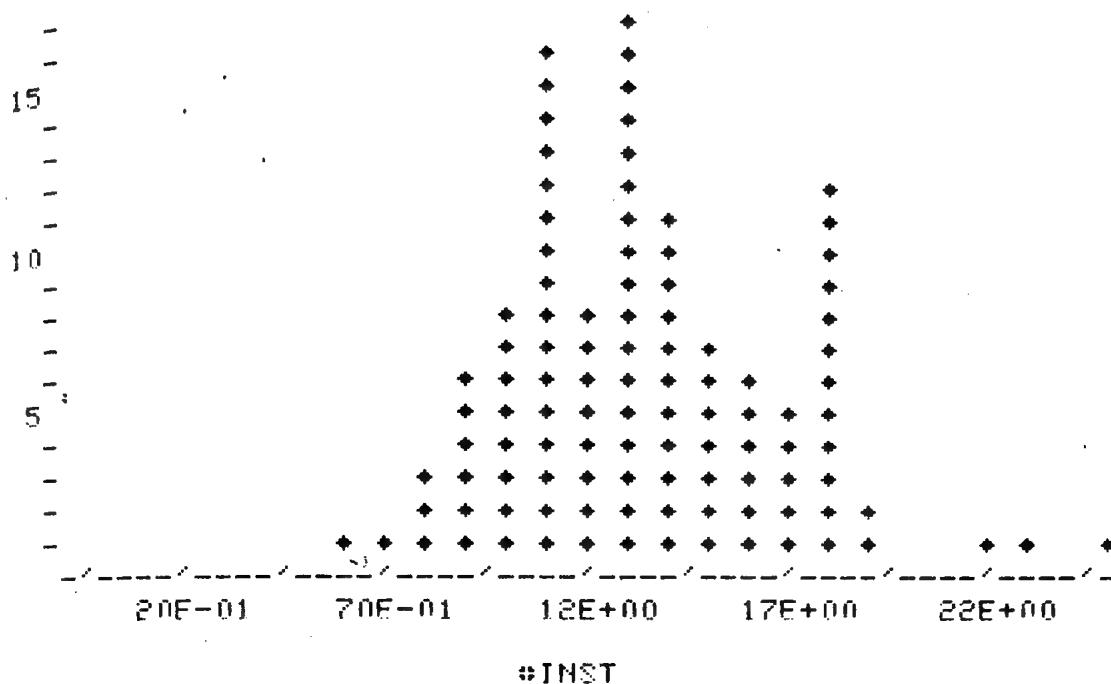
# HIGH ACHIEVING SCHOOLS - GRADE 5 (CONTINUED)



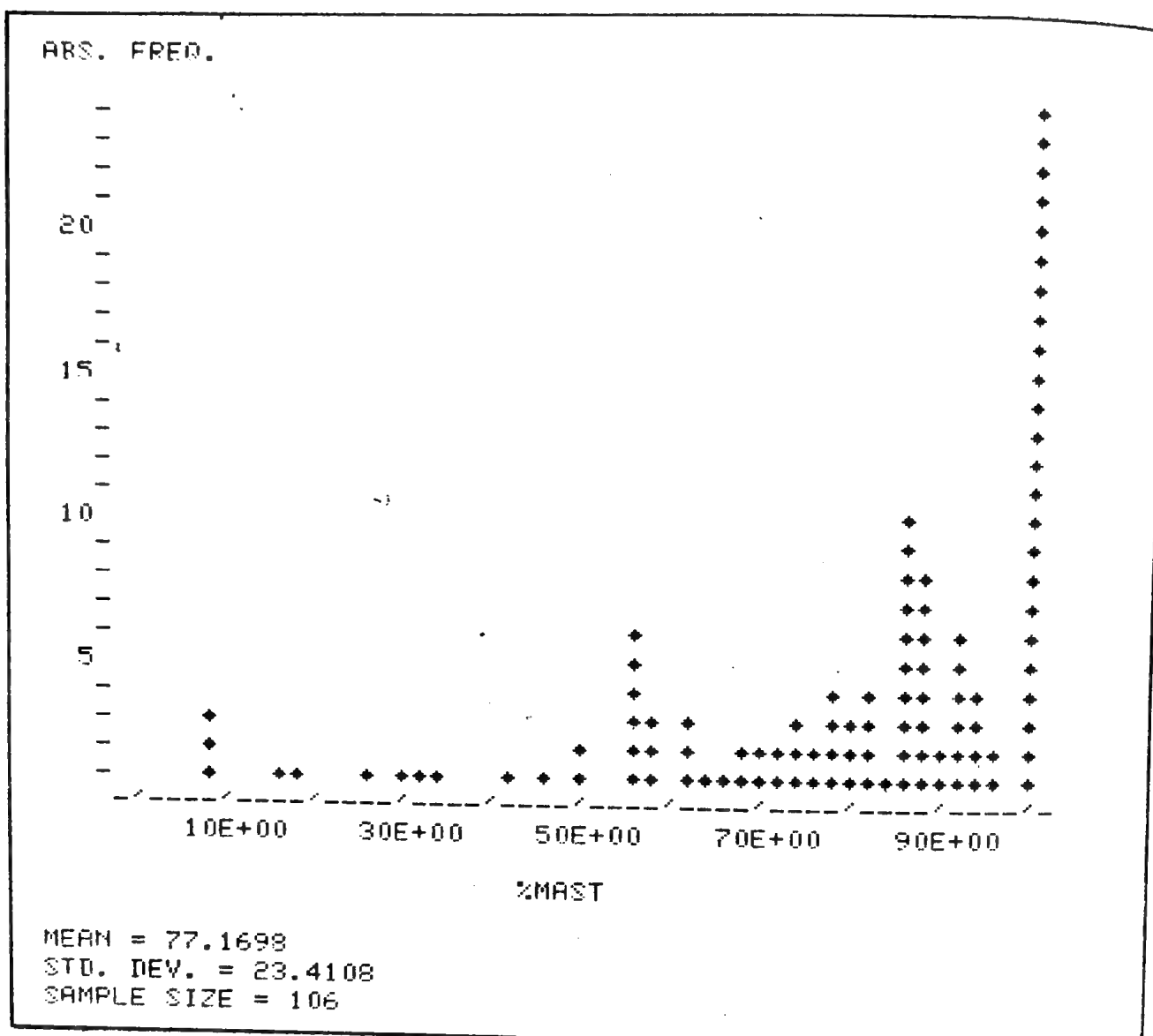
LOW ACHIEVING SCHOOLS - GRADE 4  
4TH QUARTER DATA, 1976-77

HISTOGRAM

ABS. FREQ.



LOW ACHIEVING SCHOOLS - GRADE 4 (CONTINUED)



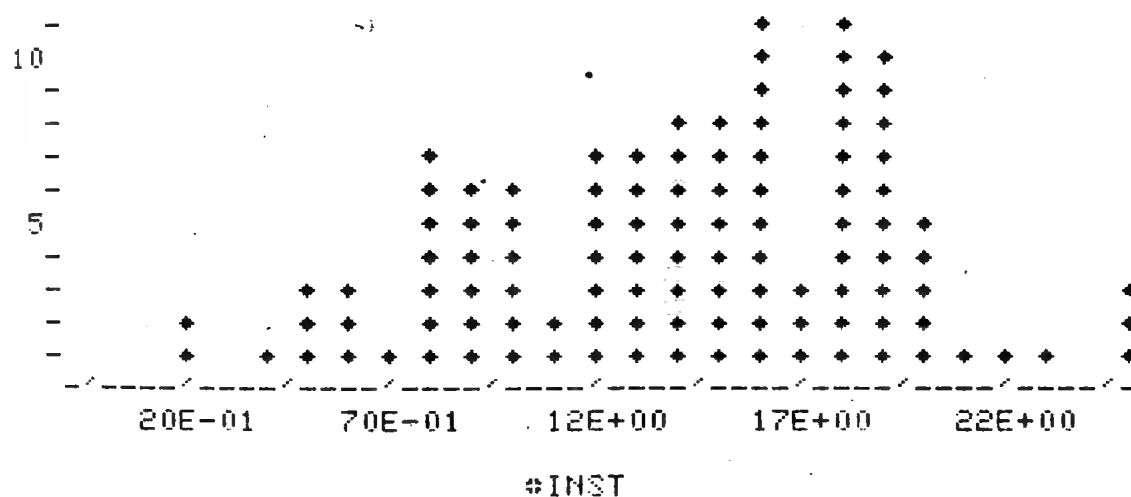
LOW ACHIEVING SCHOOLS - GRADE 5  
4TH QUARTER DATA, 1976-77

MIN. OBS. = 2      MAX. OBS. = 27  
MEAN = 14.0935      STD. DEV. = 5.124  
SAMPLE SIZE = 107

- ♦ MIDPOINT: 12
- ♦ WIDTH OF INTERVAL: .5
- 5-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 14-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 34-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL

HISTOGRAM

ABS. FREQ.



MEAN = 14.0935  
STD. DEV. = 5.124  
SAMPLE SIZE = 107

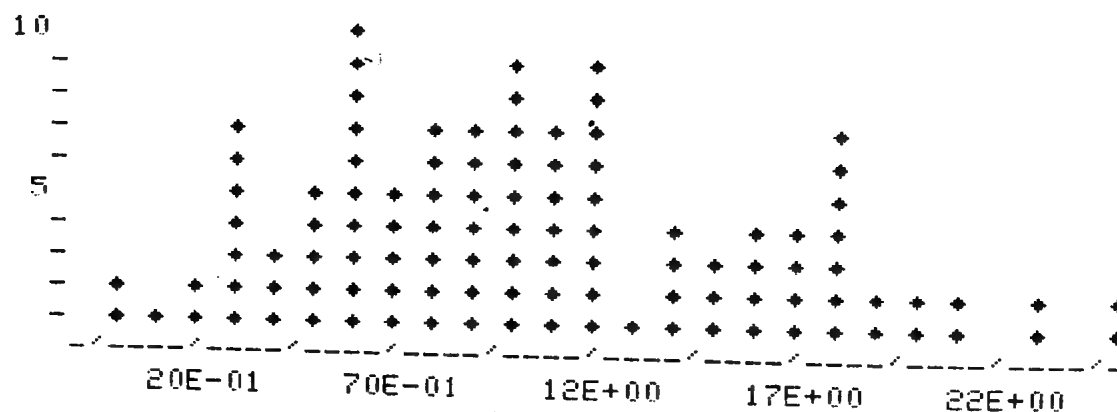
LOW ACHIEVING SCHOOLS - GRADE 5 (CONTINUED)

MIN. OBS. = 0      MAX. OBS. = 27  
 MEAN = 10.6916      STD. DEV. = 5.88637  
 SAMPLE SIZE = 107

- ♦ MIDPOINT: 12
- ♦ WIDTH OF INTERVAL: .5
- 5-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 14-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL

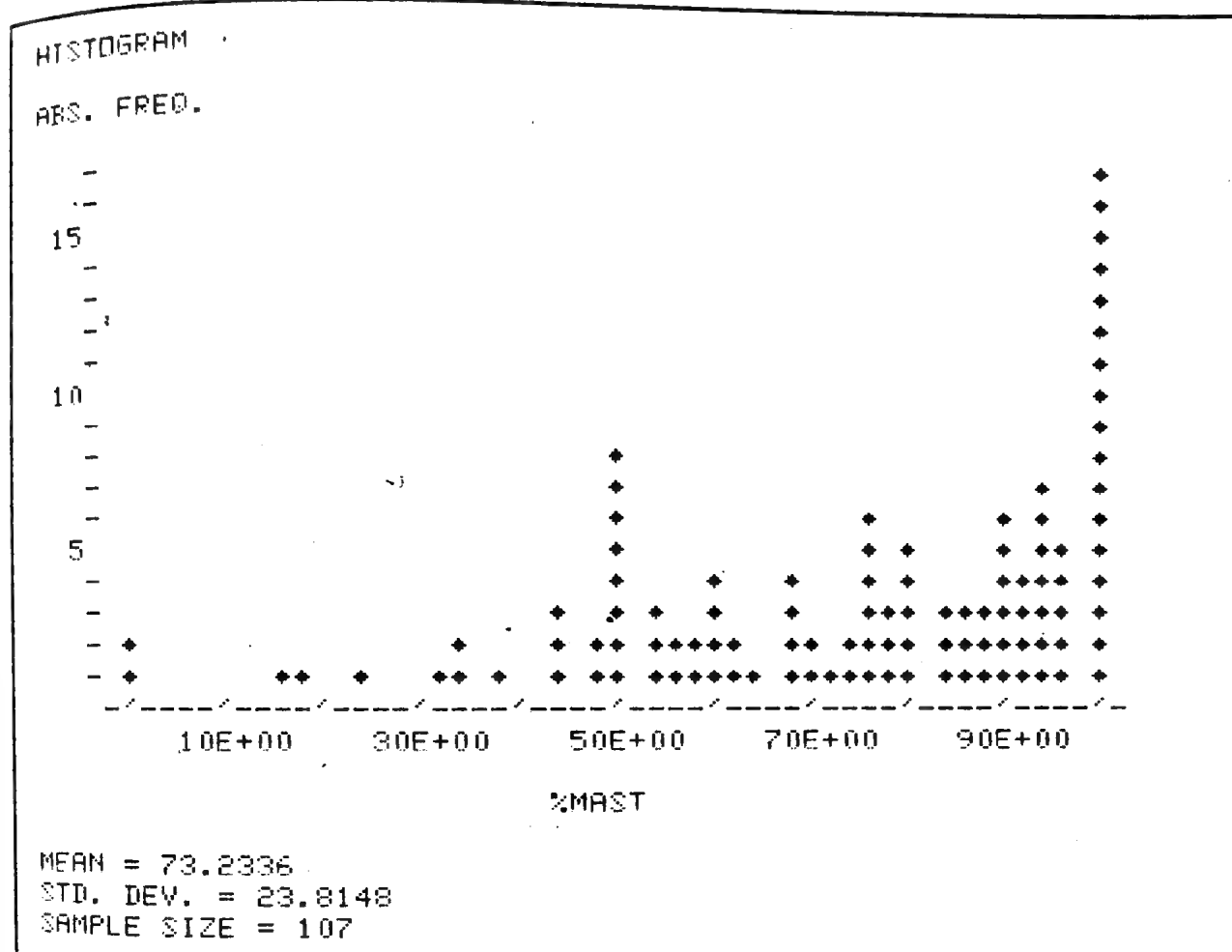
HISTOGRAM

ABS. FREQ.



MEAN = 10.6916  
 STD. DEV. = 5.88637  
 SAMPLE SIZE = 107

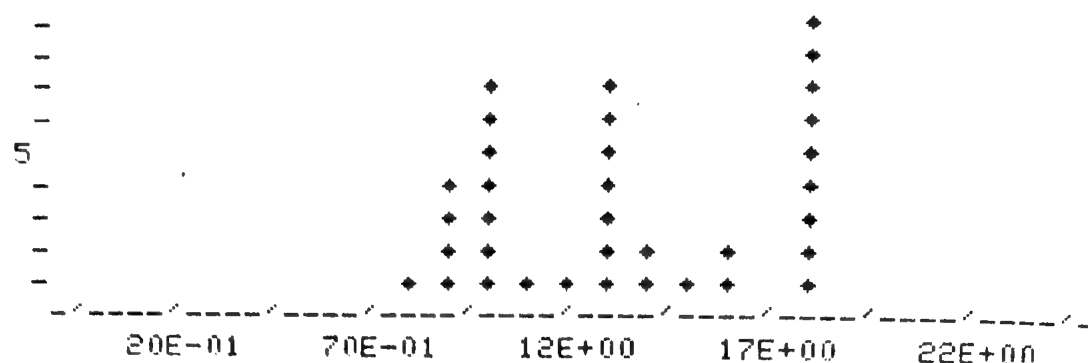
LOW ACHIEVING SCHOOLS - GRADE 5 (CONTINUED)



ENCANTO - GRADE 4  
4TH QUARTER DATA, 1976-77

## HISTOGRAM

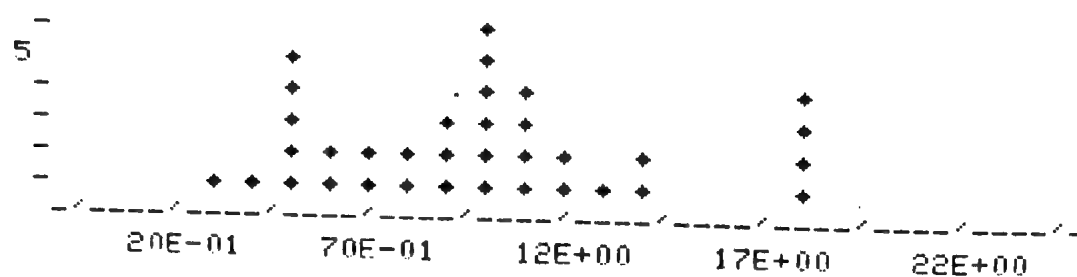
ABS. FREQ.



\*INST

MEAN = 13.2857  
STD. DEV. = 3.44342  
SAMPLE SIZE = 35

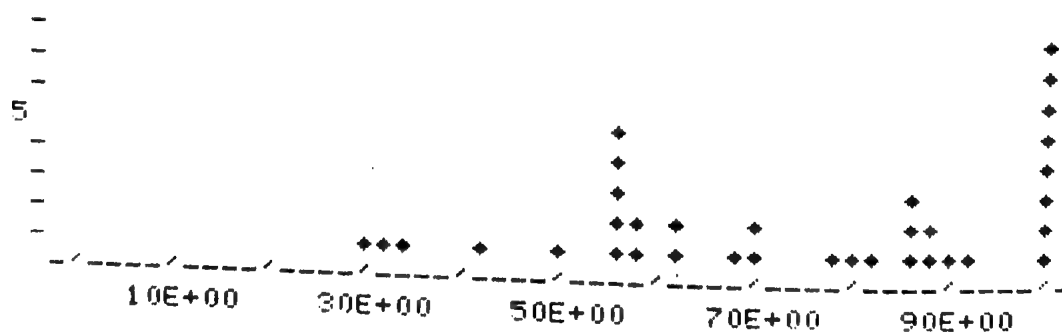
ABS. FREQ.



•MAST

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MEAN = 9.77143
STD. DEV. = 4.12372
SAMPLE SIZE = 35
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ABS. FREQ.



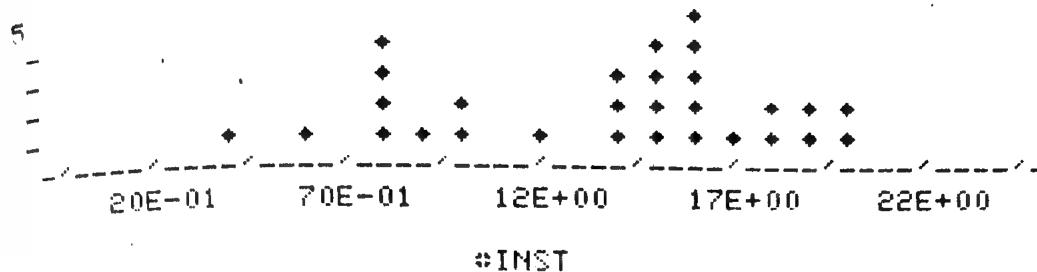
%MAST

MEAN = 73.2  
STD. DEV. = 22.0211  
SAMPLE SIZE = 35

ENCANTO - GRADE 5  
4TH QUARTER DATA, 1976-77

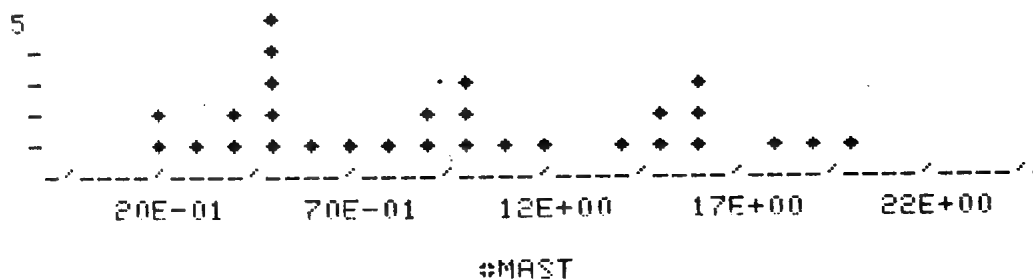
HISTOGRAM

ABS. FREQ.



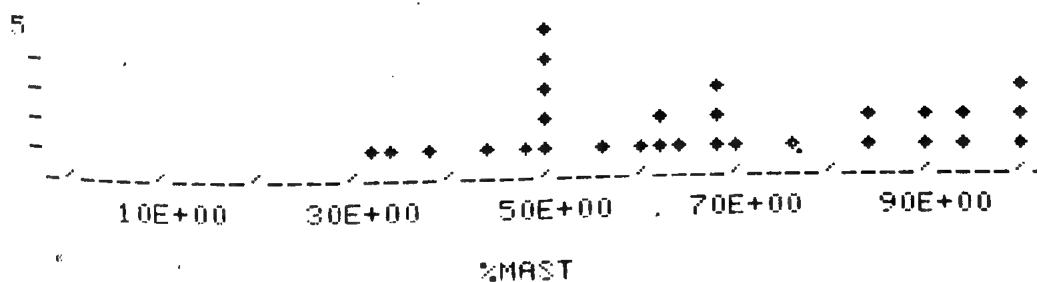
MEAN = 13.6552  
STD. DEV. = 4.4423  
SAMPLE SIZE = 29

ABS. FREQ.



MEAN = 9.68966  
STD. DEV. = 5.43207  
SAMPLE SIZE = 29

ABS. FREQ.



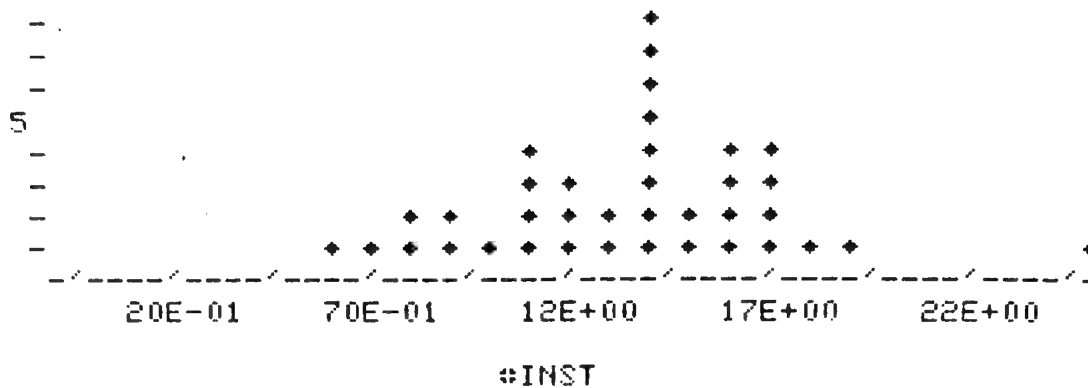
MEAN = 66.3448  
STD. DEV. = 20.963  
SAMPLE SIZE = 29



FREESE - GRADE 4  
4TH QUARTER DATA, 1976-77

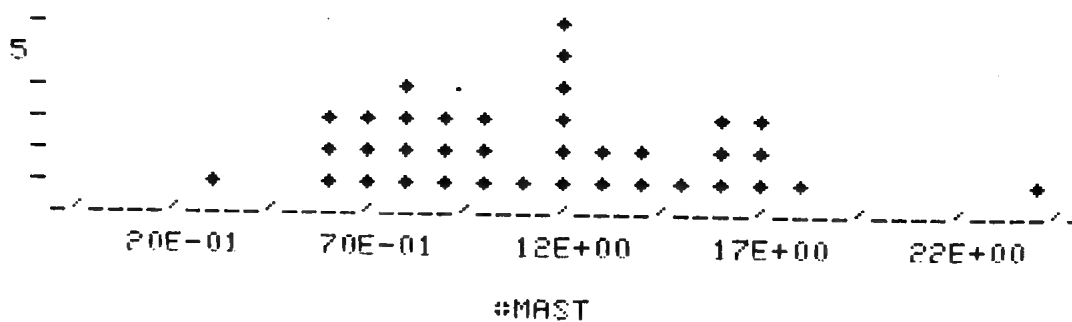
HISTOGRAM

ABS. FREQ.



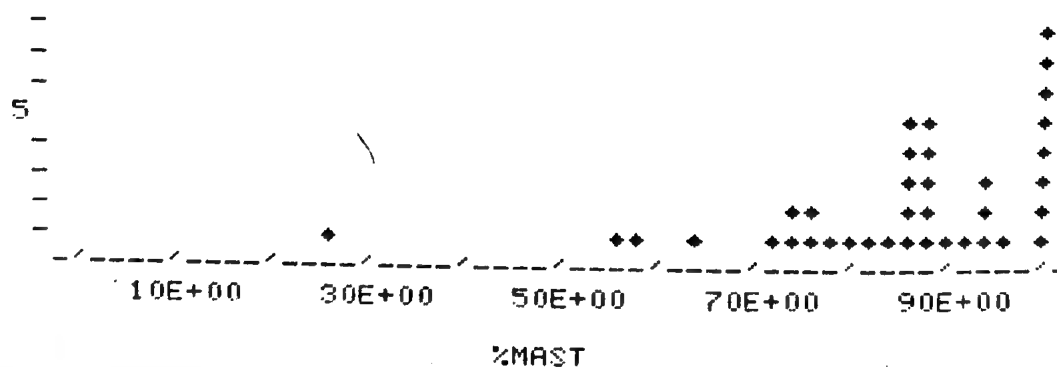
MEAN = 13.4865  
STD. DEV. = 3.75368  
SAMPLE SIZE = 37

ABS. FREQ.



MEAN = 11.4595  
STD. DEV. = 4.34354  
SAMPLE SIZE = 37

ABS. FREQ.



MEAN = 84.2432  
STD. DEV. = 15.5874  
SAMPLE SIZE = 37

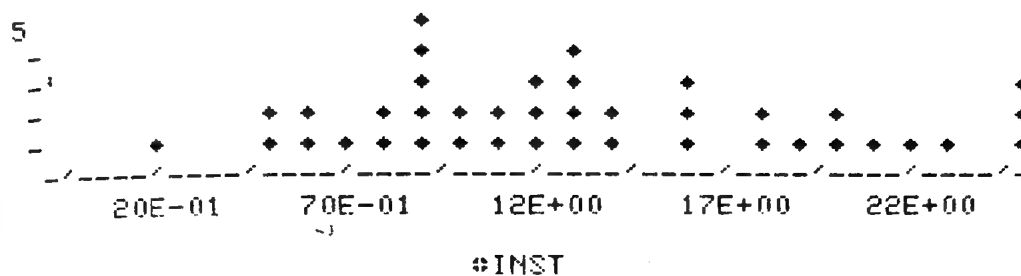
FREESE - GRADE 5  
4TH QUARTER DATA, 1976-77

MIN. OBS. = 2      MAX. OBS. = 27  
MEAN = 13.475      STD. DEV. = 6.30827  
SAMPLE SIZE = 40

- ♦ MIDPOINT: 12
- ♦ WIDTH OF INTERVAL: .5
- 5-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 14-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 34-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL

HISTOGRAM

ABS. FREQ.



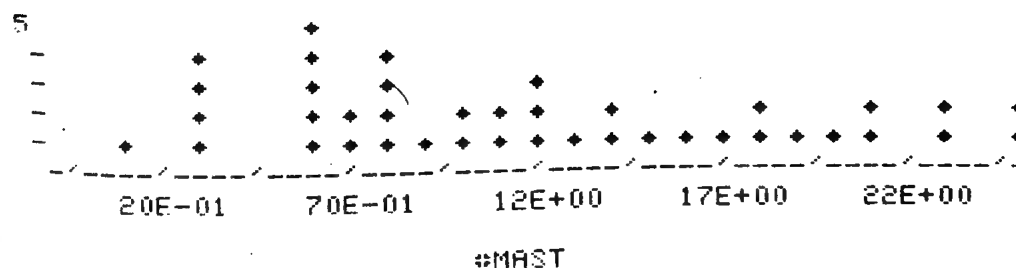
MEAN = 13.475  
STD. DEV. = 6.30827  
SAMPLE SIZE = 40

MIN. OBS. = 1      MAX. OBS. = 27  
MEAN = 12.05      STD. DEV. = 6.89835  
SAMPLE SIZE = 40

- ♦ MIDPOINT: 12
- ♦ WIDTH OF INTERVAL: .5
- 5-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL
- 14-TH OBS. AN OUTLIER; PLOTTED IN EXTREME RIGHT INTERVAL

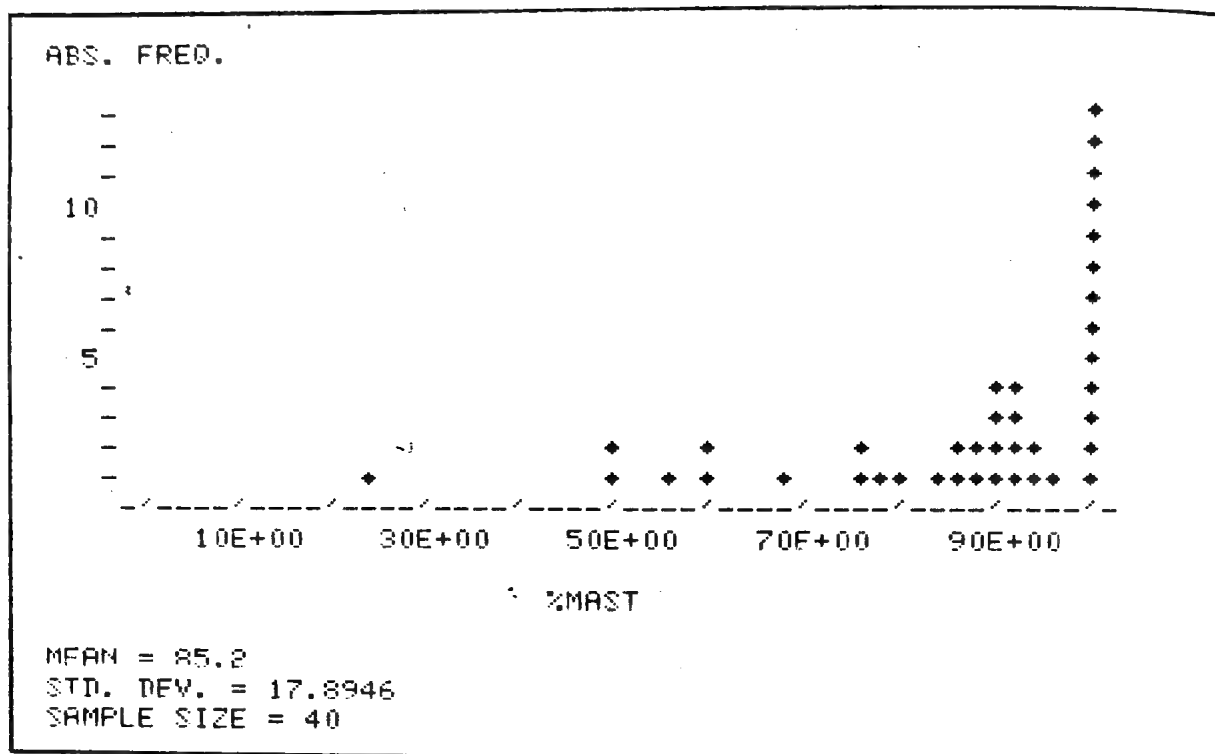
HISTOGRAM

ABS. FREQ.



MEAN = 12.05  
STD. DEV. = 6.89835  
SAMPLE SIZE = 40

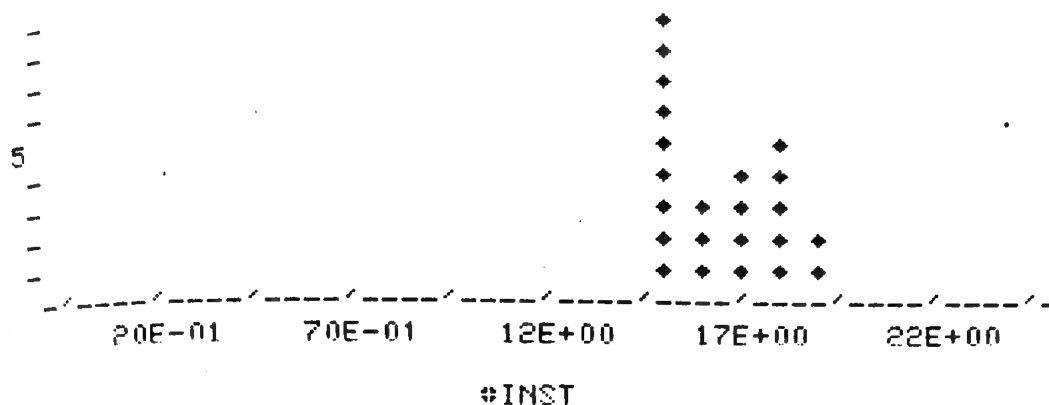
FREESE - GRADE 5 (CONTINUED)



GREEN - GRADE 4  
4TH QUARTER DATA, 1976-77

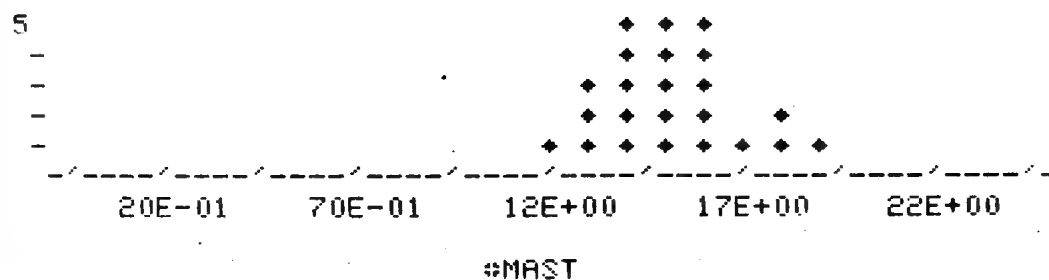
HISTOGRAM

ABS. FREQ.



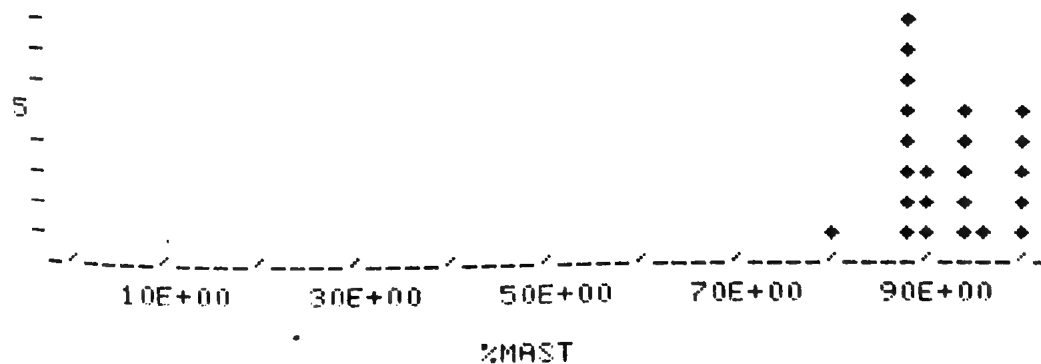
MEAN = 16.4783  
STD. DEV. = 1.44189  
SAMPLE SIZE = 23

ABS. FREQ.



MEAN = 15.1304  
STD. DEV. = 1.76595  
SAMPLE SIZE = 23

ABS. FREQ.

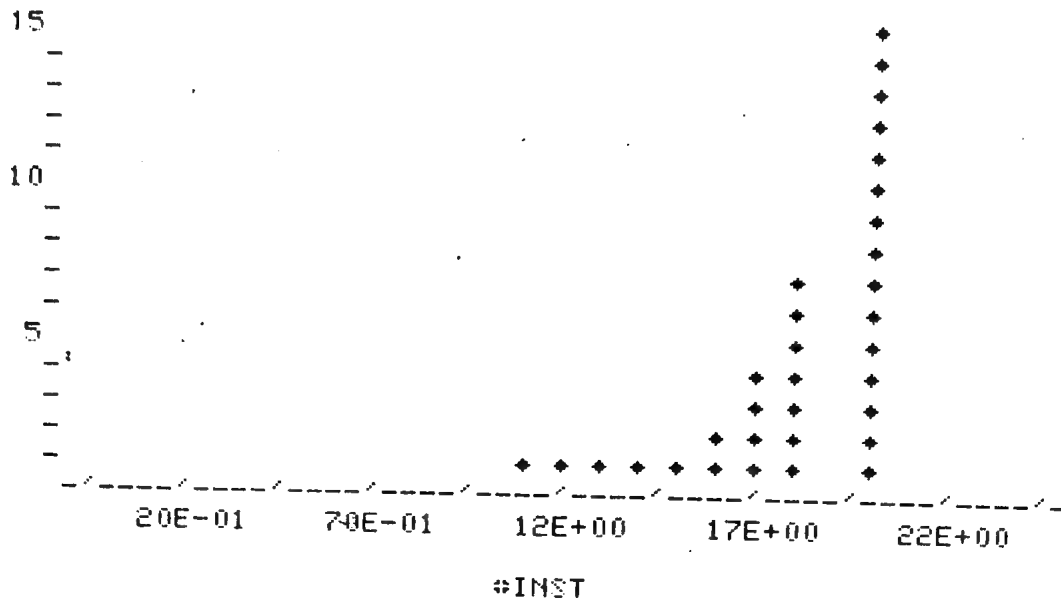


MEAN = 91.7826  
STD. DEV. = 5.50996  
SAMPLE SIZE = 23

GREEN - GRADE 5  
4TH QUARTER DATA, 1976-77

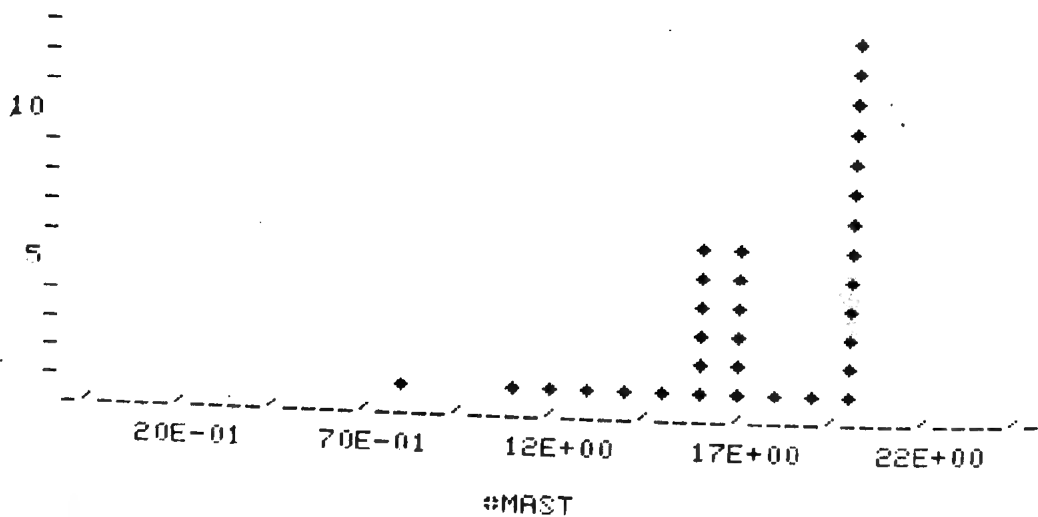
HISTOGRAM

ABS. FREQ.



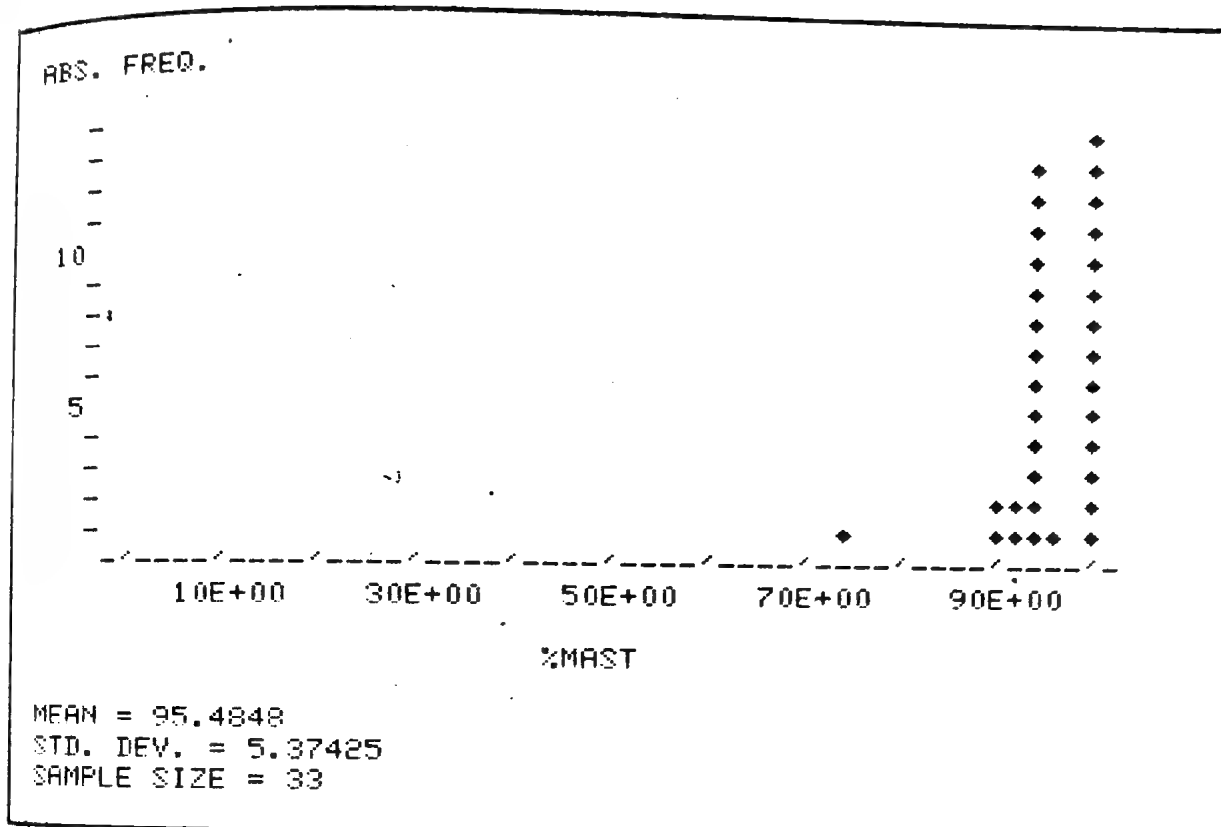
MEAN = 17.9091  
STD. DEV. = 2.5417  
SAMPLE SIZE = 33

ABS. FREQ.



MEAN = 17.2121  
STD. DEV. = 3.04916  
SAMPLE SIZE = 33

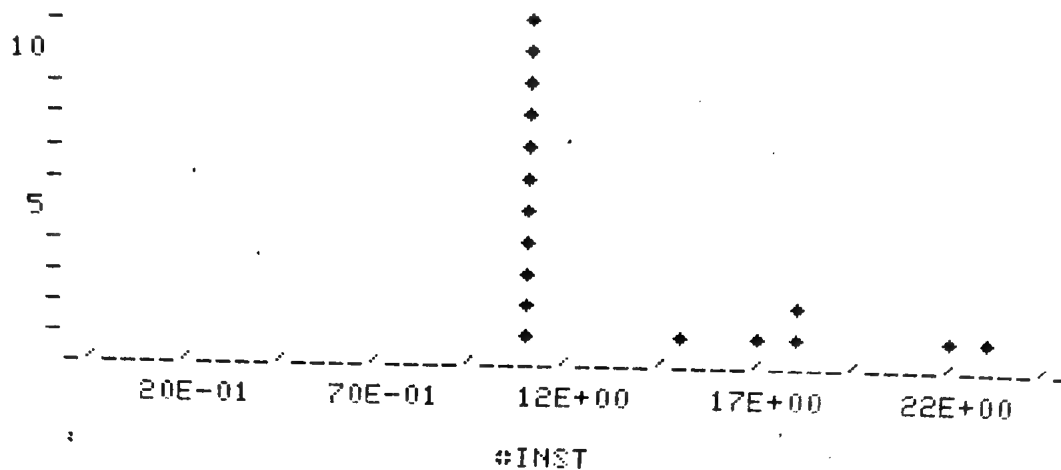
GREEN - GRADE 5 (CONTINUED)



LINDA VISTA - GRADE 4  
4TH QUARTER DATA, 1976-77

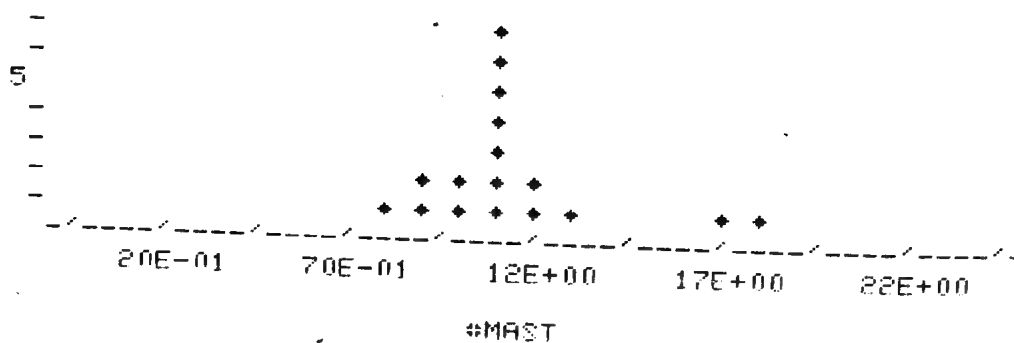
HISTOGRAM

ABS. FREQ.



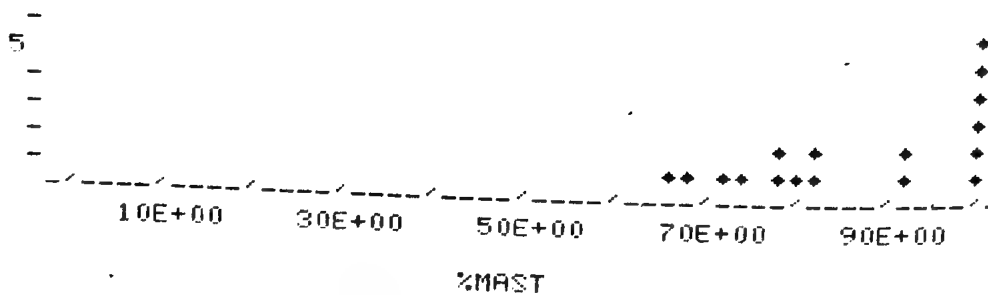
MEAN = 13.7647  
STD. DEV. = 4.22092  
SAMPLE SIZE = 17

ABS. FREQ.



MEAN = 11.4706  
STD. DEV. = 2.57676  
SAMPLE SIZE = 17

ABS. FREQ.

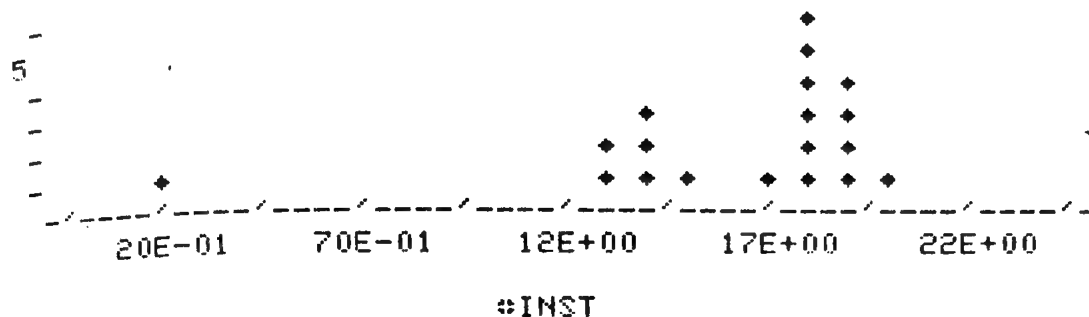


MEAN = 85.7647  
STD. DEV. = 12.7599  
SAMPLE SIZE = 17

LINDA VISTA - GRADE 5  
4TH QUARTER DATA, 1976-77

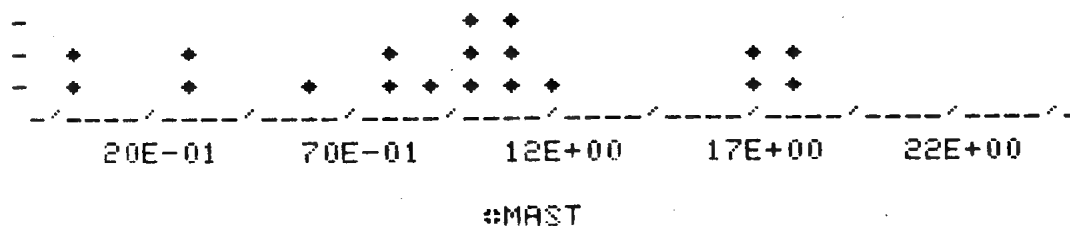
HISTOGRAM

ABS. FREQ.



MEAN = 16.1053  
STD. DEV. = 4.10819  
SAMPLE SIZE = 19

ABS. FREQ.



MEAN = 9.57895  
STD. DEV. = 5.54092  
SAMPLE SIZE = 19

ABS. FREQ.



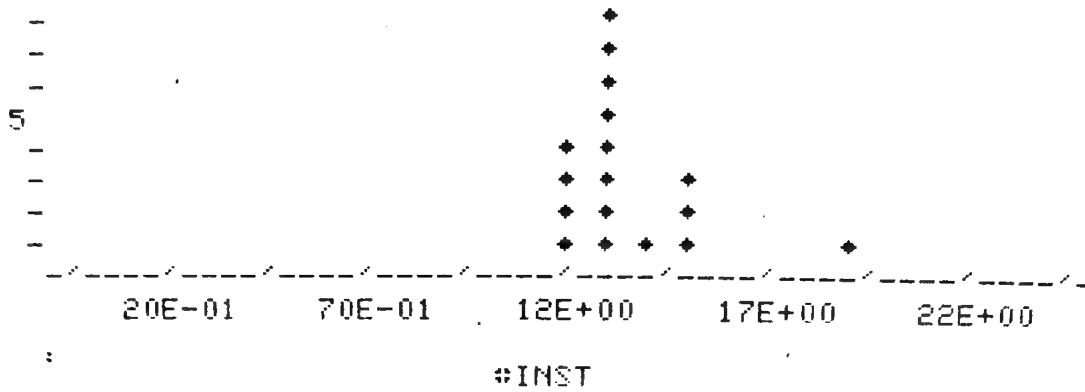
MEAN = 57.5263  
STD. DEV. = 31.9555  
SAMPLE SIZE = 19



LINDA VISTA YEAR-ROUND - GRADE 4  
4TH QUARTER DATA, 1976-77

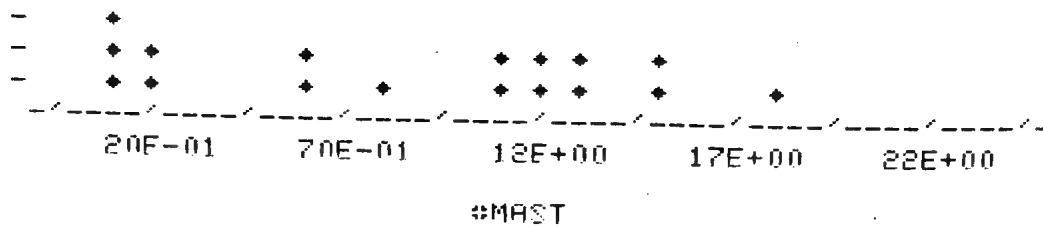
HISTOGRAM

ABS. FREQ.



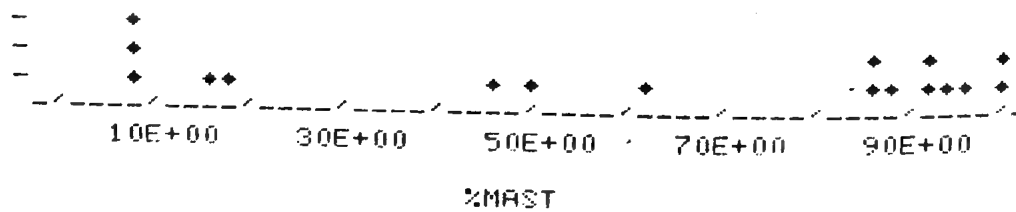
MEAN = 13.5294  
STD. DEV. = 1.73629  
SAMPLE SIZE = 17

ABS. FREQ.



MEAN = 8.64706  
STD. DEV. = 5.68926  
SAMPLE SIZE = 17

ABS. FREQ.

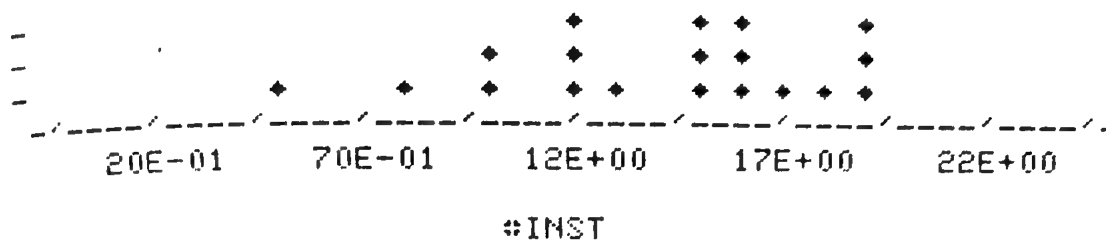


MEAN = 61.3529  
STD. DEV. = 36.9086  
SAMPLE SIZE = 17

LINDA VISTA YEAR-ROUND - GRADE 5  
4TH QUARTER DATA, 1976-77

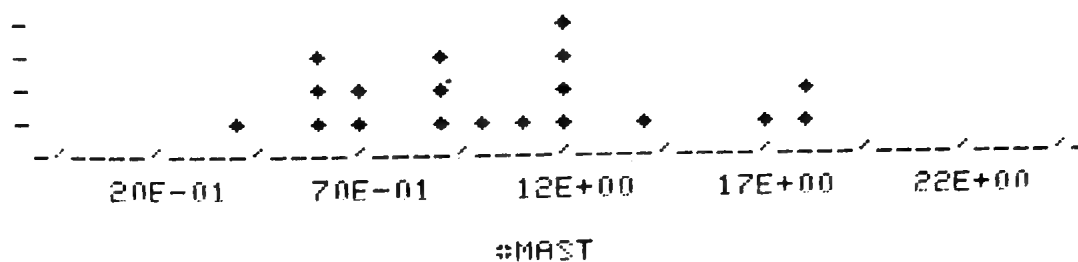
HISTOGRAM

ABS. FREQ.



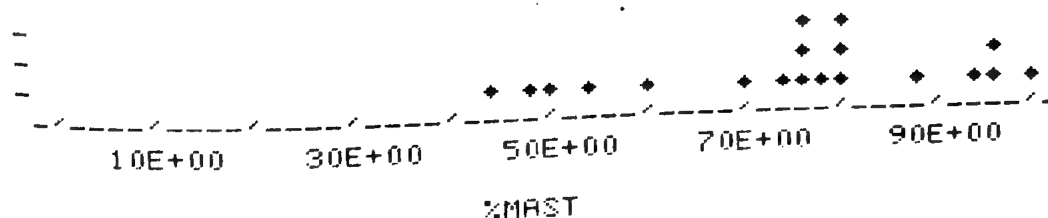
MEAN = 14.0526  
STD. DEV. = 3.9225  
SAMPLE SIZE = 19

ABS. FREQ.



MEAN = 10.4737  
STD. DEV. = 4.1549  
SAMPLE SIZE = 19

ABS. FREQ.

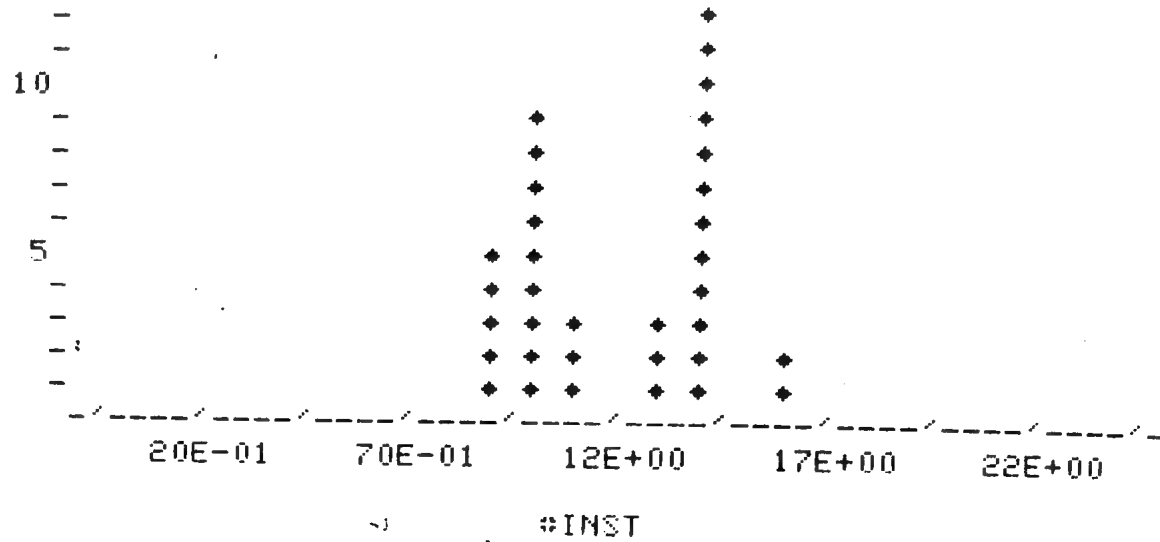


MEAN = 74.2632  
STD. DEV. = 16.8847  
SAMPLE SIZE = 19

MARVIN - GRADE 4  
4TH QUARTER DATA, 1976-77

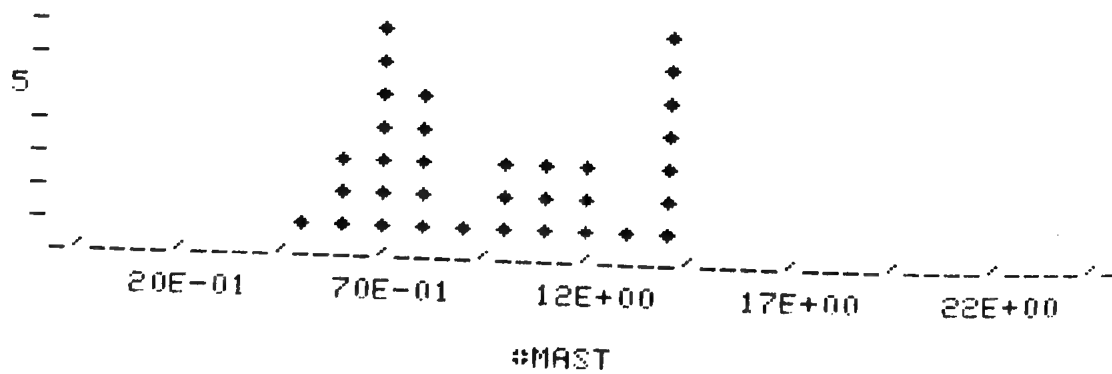
HISTOGRAM

ABS. FREQ.



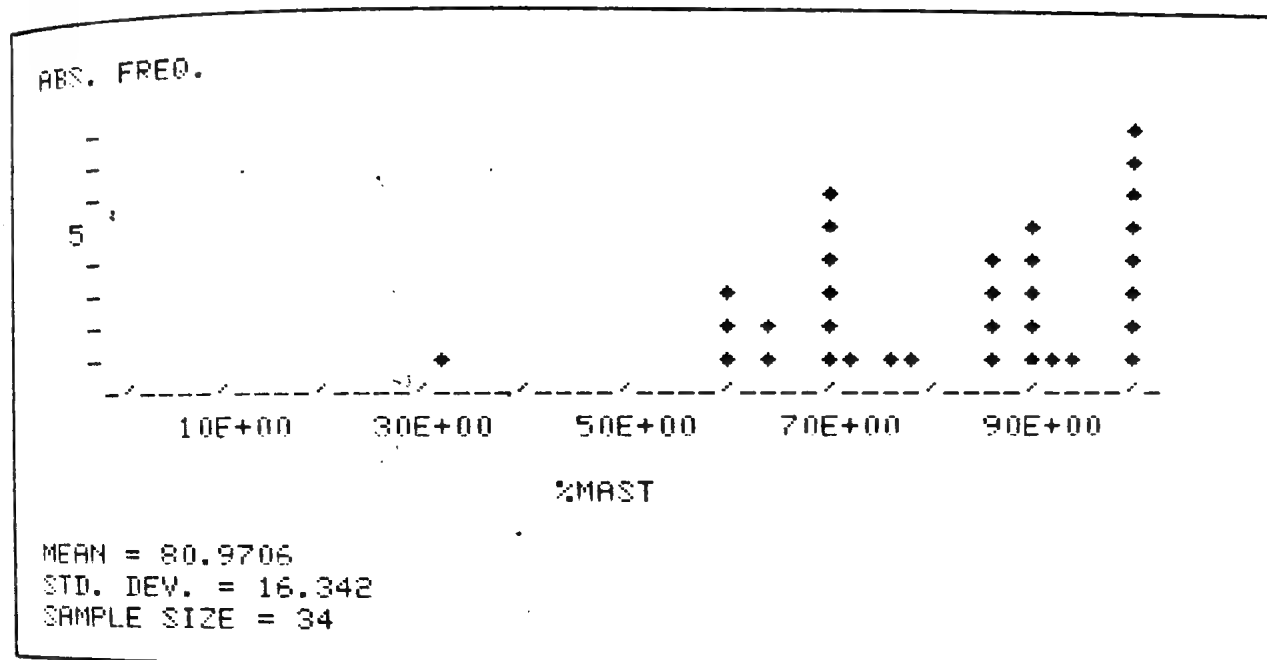
MEAN = 11.9706  
STD. DEV. = 2.24938  
SAMPLE SIZE = 34

ABS. FREQ.



MEAN = 9.73529  
STD. DEV. = 2.96759  
SAMPLE SIZE = 34

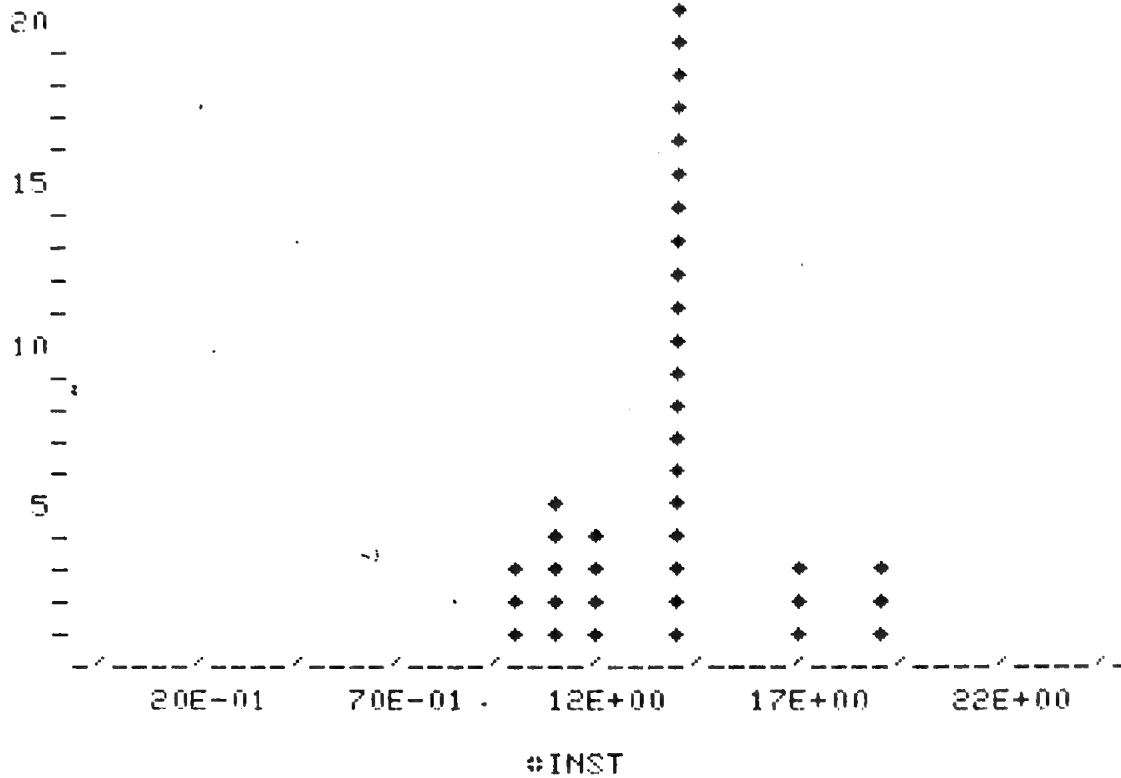
MARVIN - GRADE 4 (CONTINUED)



MARVIN - GRADE 5  
4TH QUARTER DATA, 1976-77

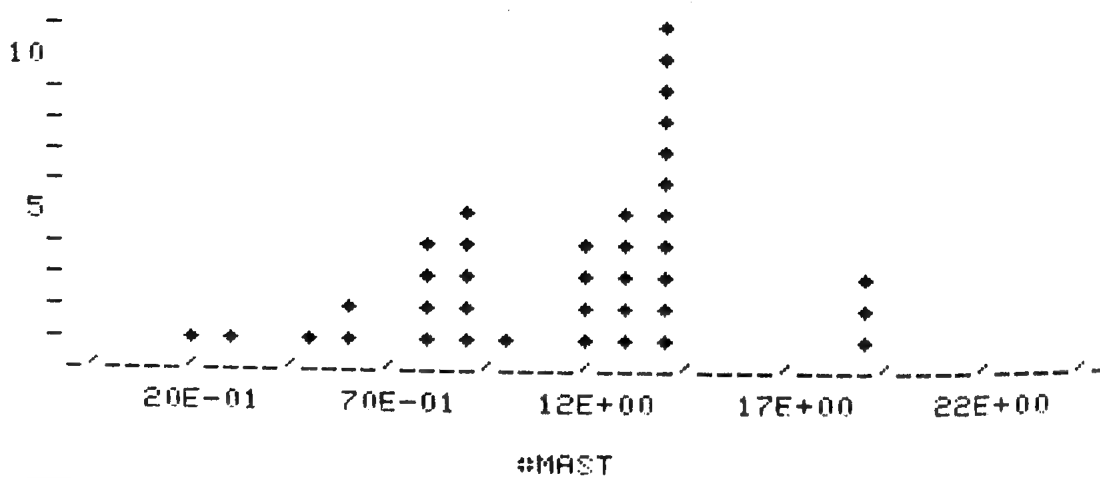
HISTOGRAM

ABS. FREQ.

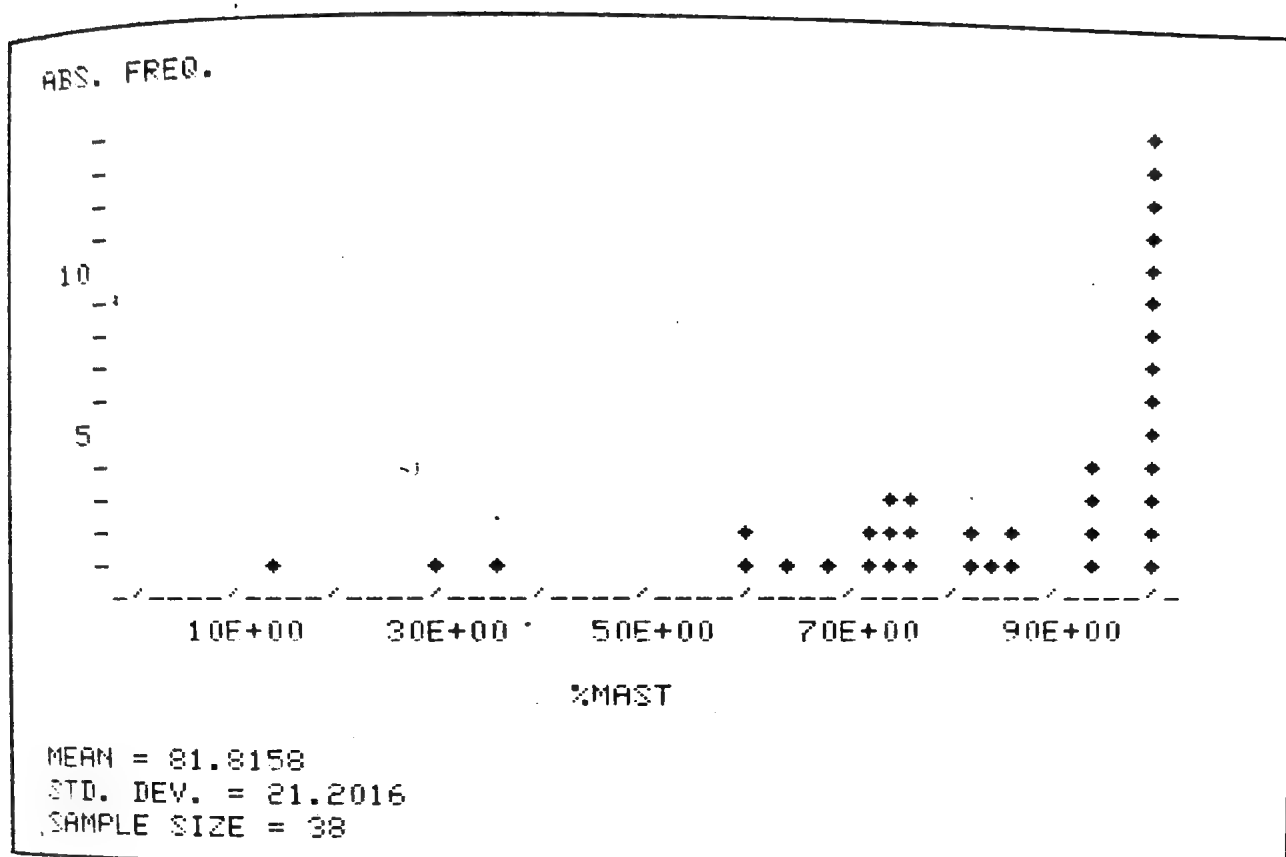


MEAN = 13.7105  
STD. DEV. = 2.36995  
SAMPLE SIZE = 38

ABS. FREQ.



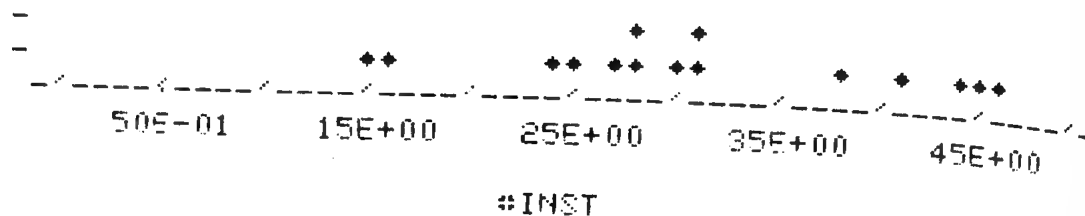
MEAN = 11.3947  
STD. DEV. = 4.01712  
SAMPLE SIZE = 38



SCRIPPS - GRADE 4  
4TH QUARTER DATA, 1976-77

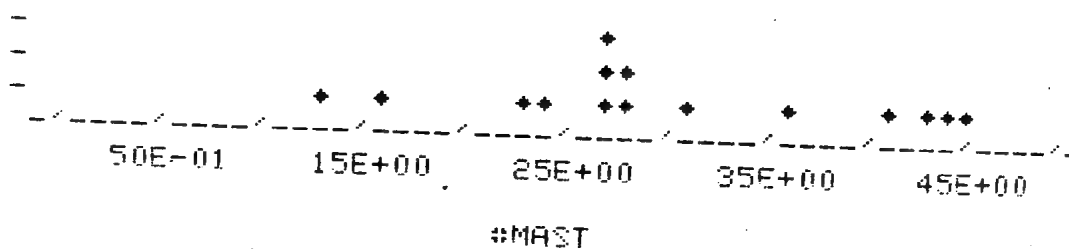
HISTOGRAM

ABS. FREQ.



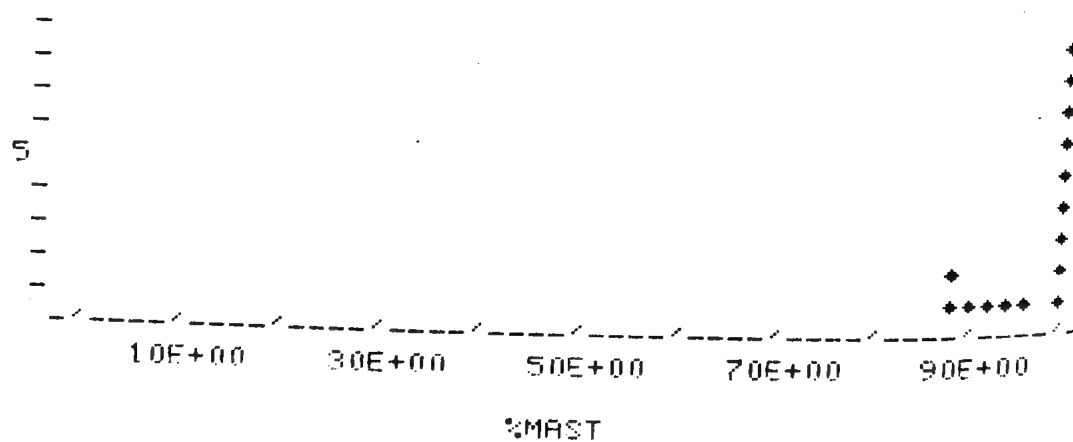
MEAN = 31.2667  
STD. DEV. = 9.77947  
SAMPLE SIZE = 15

ABS. FREQ.



MEAN = 30.2  
STD. DEV. = 9.82853  
SAMPLE SIZE = 15

ABS. FREQ.

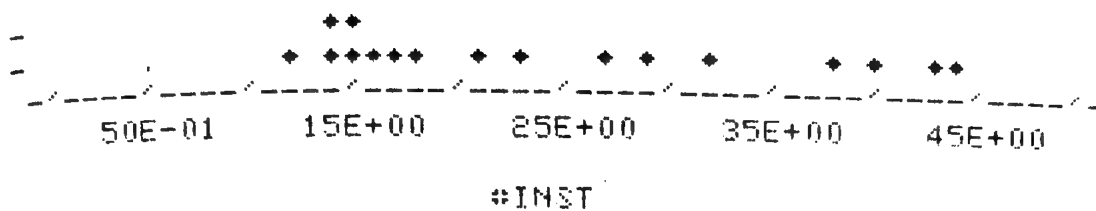


MEAN = 96.2667  
STD. DEV. = 5.11952  
SAMPLE SIZE = 15

SCRIPPS - GRADE 5  
4TH QUARTER DATA, 1976-77

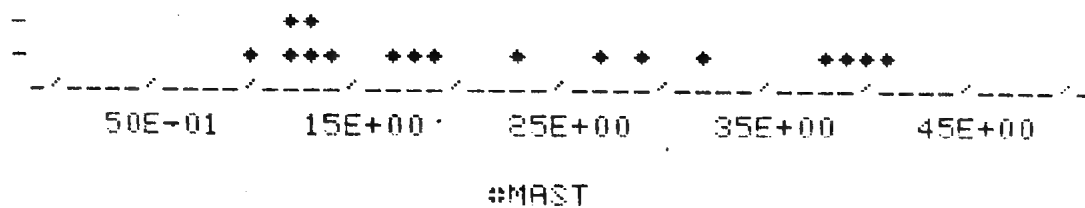
HISTOGRAM

ABS. FREQ.



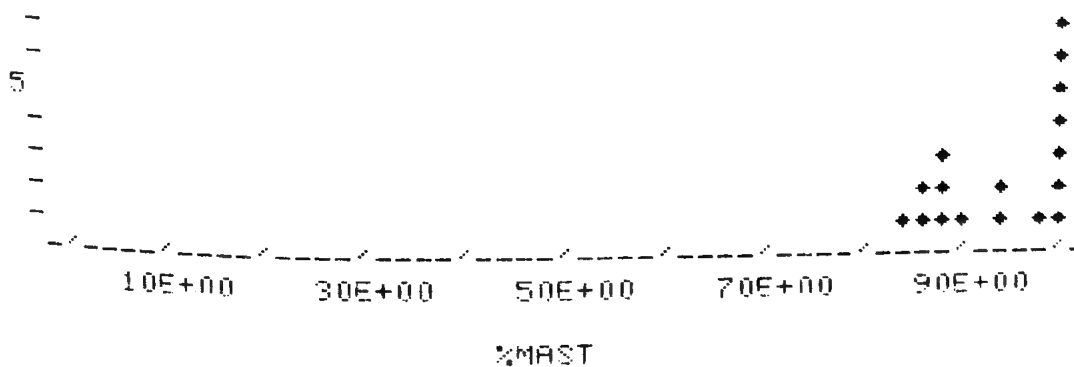
MEAN = 24.5882  
STD. DEV. = 11.0965  
SAMPLE SIZE = 17

ABS. FREQ.



MEAN = 23.3529  
STD. DEV. = 11.1632  
SAMPLE SIZE = 17

ABS. FREQ.



MEAN = 93.5882  
STD. DEV. = 6.45231  
SAMPLE SIZE = 17



## APPENDIX B

### SUPPLEMENTARY EVALUATION DATA

#### CTBS TEST DATA BY SCHOOL

# PROJECT TELEMATH

1976-1977 TEST DATA

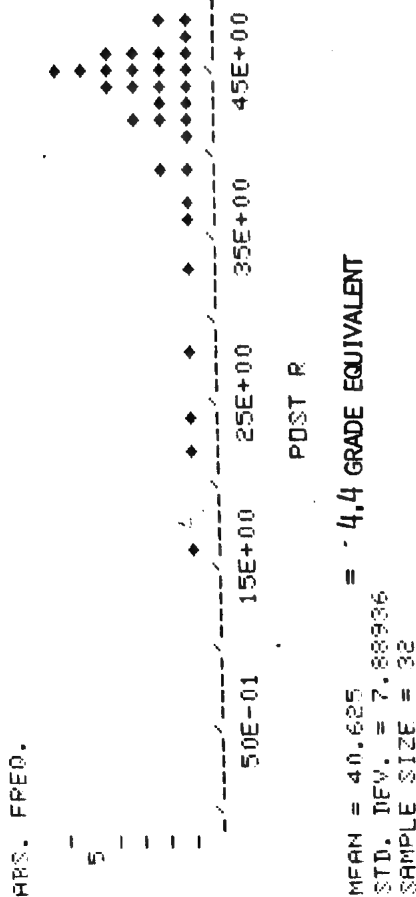
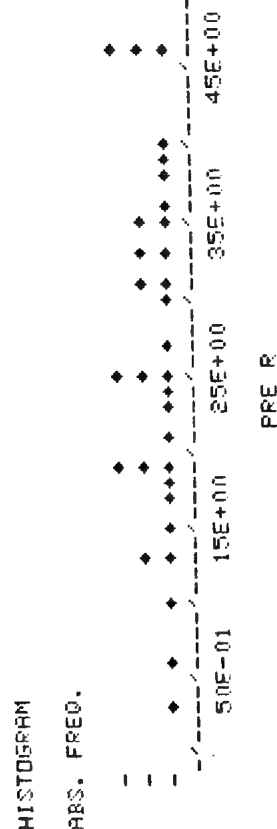
ENCANTO GRADE 4

POSTTEST

PRETEST

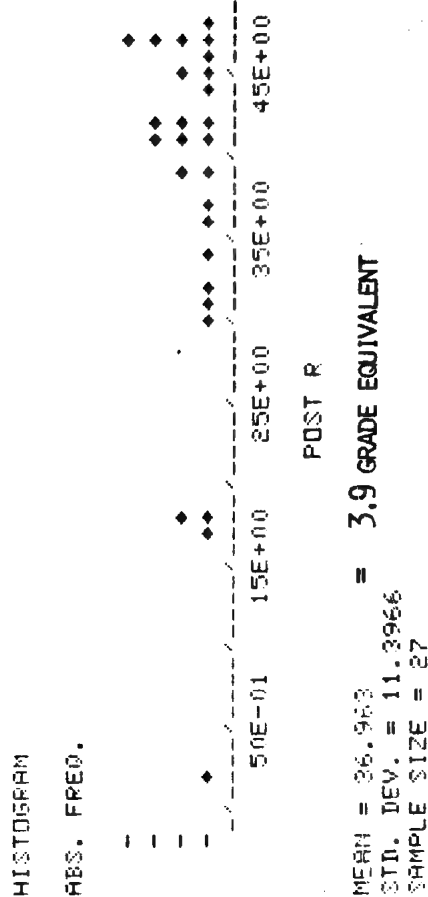
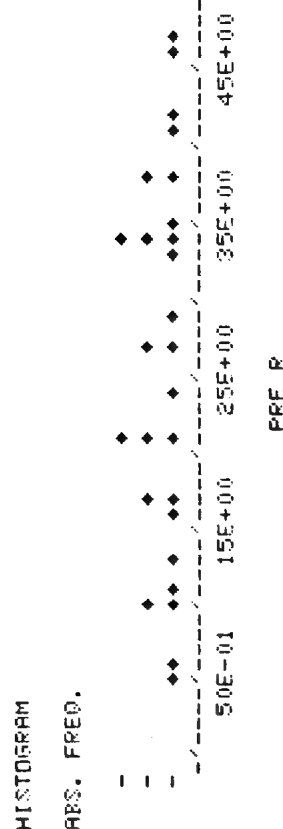
## TELEMATH

HISTOGRAM  
ABS. FREQ.



## COMPARISON

HISTOGRAM  
ABS. FREQ.



# PROJECT TELEMATH

1976-1977 TEST DATA

ENCANTO GRADE 5

POSTTEST

PRETEST

## TELEMATH

HISTOGRAM

ABS. FREQ.

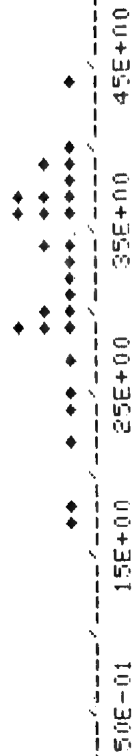


PRE P

MEAN = 24.7407 = 4.8 GRADE EQUIVALENT  
STD. DEV. = 7.05251  
SAMPLE SIZE = 27

HISTOGRAM

ABS. FREQ.



POST P

MEAN = 31.963 = 5.6 GRADE EQUIVALENT  
STD. DEV. = 6.70523  
SAMPLE SIZE = 27

## COMPARISON

HISTOGRAM

ABS. FREQ.



PRE P

MEAN = 22.913 = 4.6 GRADE EQUIVALENT  
STD. DEV. = 8.36069  
SAMPLE SIZE = 23

HISTOGRAM

ABS. FREQ.



POST P

MEAN = 26.7826 = 5.0 GRADE EQUIVALENT  
STD. DEV. = 10.0452  
SAMPLE SIZE = 23

# PROJECT TELEMATH

1976-1977 TEST DATA

FREESE GRADE 4

POSTEST

PRETEST

## TELEMATH

HISTOGRAM

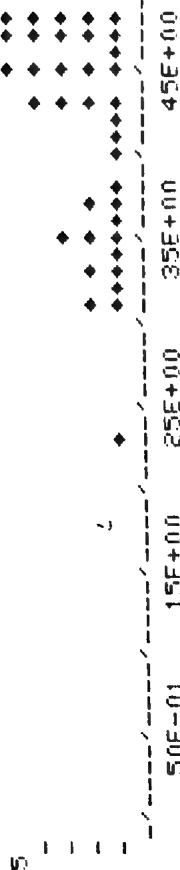
ABS. FREQ.



PRE R

MEAN = 27.5946 = 3.4 GRADE EQUIVALENT  
STD. DEV. = 11.3271  
SAMPLE SIZE = 37

ABS. FREQ.



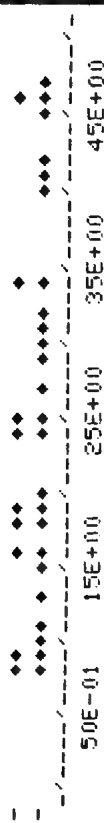
POST R

MEAN = 40.8378 = 4.4 GRADE EQUIVALENT  
STD. DEV. = 6.46148  
SAMPLE SIZE = 37

## COMPARISON

HISTOGRAM

ABS. FREQ.

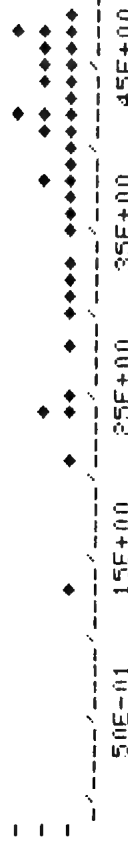


PRE R

MEAN = 25.1818 = 3.2 GRADE EQUIVALENT  
STD. DEV. = 12.4259  
SAMPLE SIZE = 33

HISTOGRAM

ABS. FREQ.



POST R

MEAN = 37.3939 = 3.9 GRADE EQUIVALENT  
STD. DEV. = 8.81738  
SAMPLE SIZE = 33

# PROJECT TELEMATH

1976-1977 TEST DATA

FREESE GRADE 5

PRETEST

POSTTEST

## TELEMATH

HISTOGRAM

ABS. FREQ.

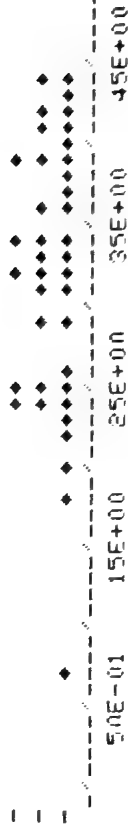


PRE R

MEAN = 25.7949 = 4.9 GRADE EQUIVALENT  
STD. DEV. = 7.85788  
SAMPLE SIZE = 39

HISTOGRAM

ABS. FREQ.

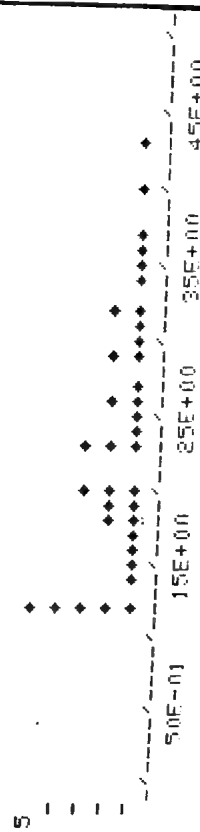


POST R

MEAN = 32 = 5.6 GRADE EQUIVALENT  
STD. DEV. = 8.31929  
SAMPLE SIZE = 39

HISTOGRAM

ABS. FREQ.



PRE R

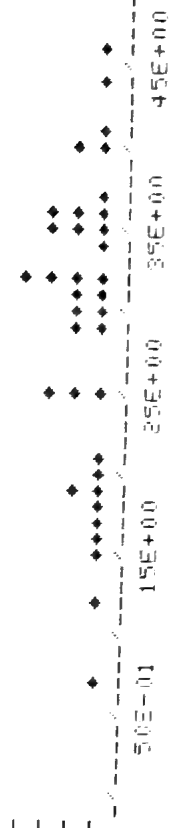
MEAN = 23.9167 = 4.7 GRADE EQUIVALENT  
STD. DEV. = 8.64994  
SAMPLE SIZE = 36

## COMPARISON

7

HISTOGRAM

ABS. FREQ.



POST R

MEAN = 28.9444 = 5.2 GRADE EQUIVALENT  
STD. DEV. = 9.3898  
SAMPLE SIZE = 34

# PROJECT TELEMATH

1976-1977 TEST DATA

GREEN GRADE 4

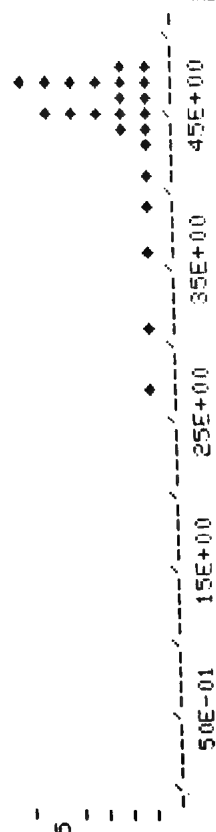
POSTEST

PRETEST

## TELEMATH

HISTOGRAM

ABS. FREQ.



PRE P

MEAN = 43.4783 = 4.7 GRADE EQUIVALENT

STD. DEV. = 5.43448

SAMPLE SIZE = 23

MEAN = 46.7826 = 6.0 GRADE EQUIVALENT

STD. DEV. = 1.34693

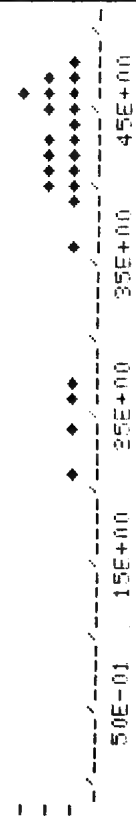
SAMPLE SIZE = 23

POST P

## COMPARISON

HISTOGRAM

ABS. FREQ.



PRE P

MEAN = 39.9565 = 4.2 GRADE EQUIVALENT

STD. DEV. = 7.871

SAMPLE SIZE = 23

MEAN = 44.4348 = 4.9 GRADE EQUIVALENT

STD. DEV. = 7.70375

SAMPLE SIZE = 23

POST P

# PROJECT TELEMATH

1976-1977 TEST DATA

GREEN GRADE 5

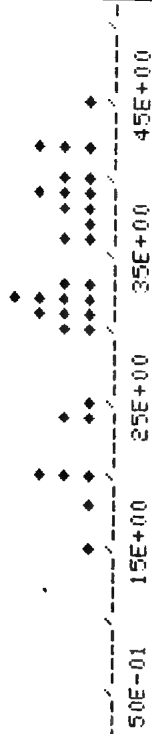
PRETEST

POSTEST

## TELEMATH

HISTOGRAM

ABS. FREQ.



PRE R

MEAN = 32.303  
STD. DEV. = 7.86005  
SAMPLE SIZE = 33

MEAN = 38.5152  
STD. DEV. = 5.98499  
SAMPLE SIZE = 33

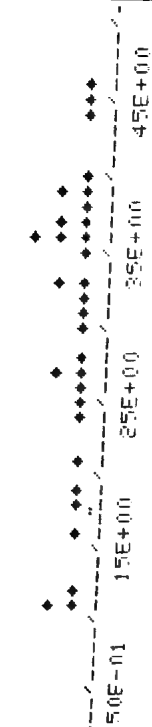
POST R

= 7.0 GRADE EQUIVALENT

## COMPARISON

HISTOGRAM

ABS. FREQ.



PRE R

MEAN = 30.0645  
STD. DEV. = 9.90601  
SAMPLE SIZE = 31

POST R

MEAN = 35.5806  
STD. DEV. = 8.58594  
SAMPLE SIZE = 31

= 6.3 GRADE EQUIVALENT

# PROJECT TELEMATH

1976-1977 TEST DATA

LINDA VISTA GRADE 4

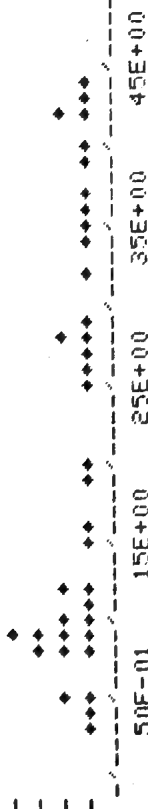
POSTTEST

PRETEST

## TELEMATH

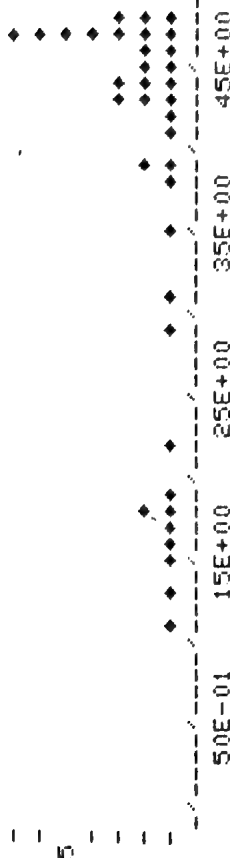
HISTOGRAM

ABS. FREQ.



PRE R

MEAN = 21.3243 = 3.0 GRADE EQUIVALENT  
 STD. DEV. = 13.4991  
 SAMPLE SIZE = 37



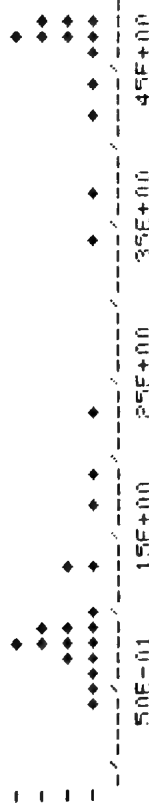
POST R

MEAN = 36.7297 = 3.9 GRADE EQUIVALENT  
 STD. DEV. = 12.4803  
 SAMPLE SIZE = 37

## COMPARISON

HISTOGRAM

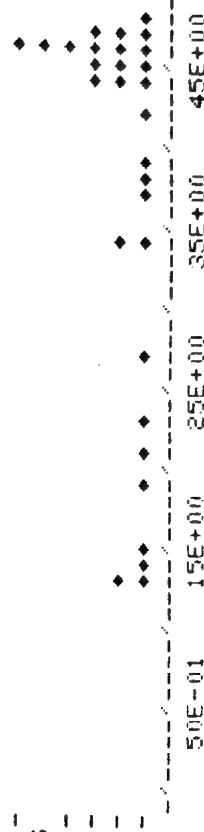
ABS. FREQ.



PRE R

MEAN = 23.9333 = 3.2 GRADE EQUIVALENT  
 STD. DEV. = 17.8073  
 SAMPLE SIZE = 30

ABS. FREQ.



POST R

MEAN = 34.7 = 3.9 GRADE EQUIVALENT  
 STD. DEV. = 12.2225  
 SAMPLE SIZE = 30



# PROJECT TELEMATH

1976-1977 TEST DATA

LINDA VISTA GRADE 5

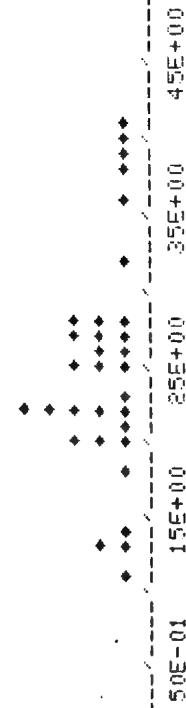
POSTTEST

PRETEST

## TELEMATH

HISTOGRAM

ABS. FREQ.



PRE R

MEAN = 25.0312 = 4.8 GRADE EQUIVALENT  
STD. DEV. = 7.72714  
SAMPLE SIZE = 32

ABS. FREQ.



POST R

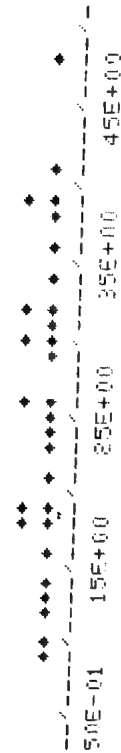
MEAN = 31.1875 = 5.5 GRADE EQUIVALENT  
STD. DEV. = 9.7532  
SAMPLE SIZE = 32

## COMPARISON

7

HISTOGRAM

ABS. FREQ.



PRE R

MEAN = 25.931 = 4.9 GRADE EQUIVALENT  
STD. DEV. = 10.1978  
SAMPLE SIZE = 29

HISTOGRAM

ABS. FREQ.



POST R

MEAN = 31.1035 = 5.5 GRADE EQUIVALENT  
STD. DEV. = 9.87194  
SAMPLE SIZE = 29

# PROJECT TELEMATH

1976-1977 TEST DATA

MARVIN GRADE 4

POSTTEST

PRETEST

## TELEMATH

HISTOGRAM

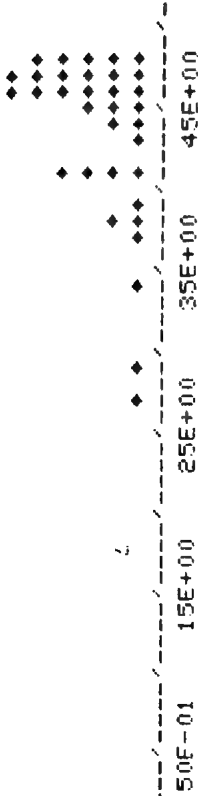
ABS. FREQ.



PRE R

MEAN = 35.1176 = 3.7 GRADE EQUIVALENT  
STD. DEV. = 10.1078  
SAMPLE SIZE = 34

ABS. FREQ.



POST R

MEAN = 43.2353 = 4.7 GRADE EQUIVALENT  
STD. DEV. = 5.33177  
SAMPLE SIZE = 34

## COMPARISON

HISTOGRAM

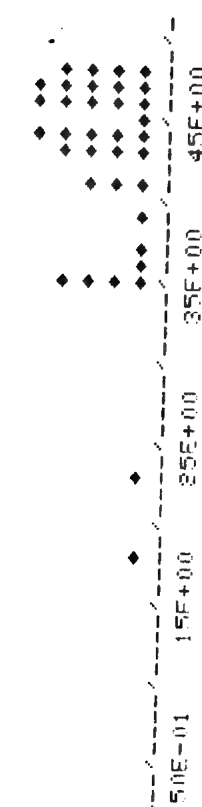
ABS. FREQ.



PRE R

MEAN = 34.8889 = 3.7 GRADE EQUIVALENT  
STD. DEV. = 10.9495  
SAMPLE SIZE = 36

ABS. FREQ.



POST R

MEAN = 41.9444 = 4.6 GRADE EQUIVALENT  
STD. DEV. = 6.7356  
SAMPLE SIZE = 36

# PROJECT TELEMATH

1976-1977 TEST DATA

MARVIN GRADE 5

PRETEST

POSTTEST

## TELEMATH

HISTOGRAM

ABS. FREQ.



PRE R

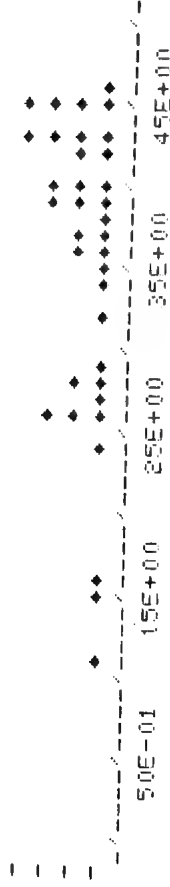
MEAN = 27.8889 = 5.1 GRADE EQUIVALENT

STD. DEV. = 9.33435

SAMPLE SIZE = 36

HISTOGRAM

ABS. FREQ.



POST R

MEAN = 35 = 6.1 GRADE EQUIVALENT

STD. DEV. = 9.1433

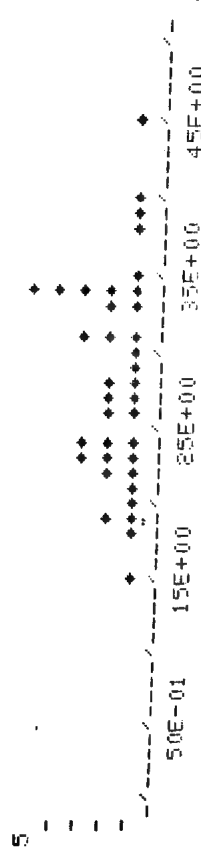
SAMPLE SIZE = 35

156

## COMPARISON

HISTOGRAM

ABS. FREQ.



PRE R

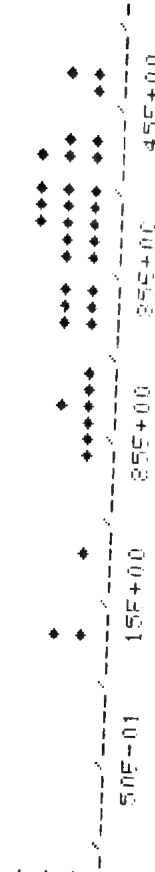
MEAN = 28.2162 = 5.1 GRADE EQUIVALENT

STD. DEV. = 6.8965

SAMPLE SIZE = 37

HISTOGRAM

ABS. FREQ.



POST R

MEAN = 34.5135 = 6.1 GRADE EQUIVALENT

STD. DEV. = 8.55577

SAMPLE SIZE = 37

PROJECT TELEMATH

1976-1977 TEST DATA

SCRIPPS GRADE 4

PRETEST

POSTTEST

# PROJECT TELEMATH

1976-1977 TEST DATA

SCRIPPS GRADE 4

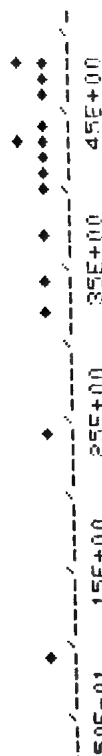
POSTTEST

PRETEST

## TELEMATH

HISTOGRAM

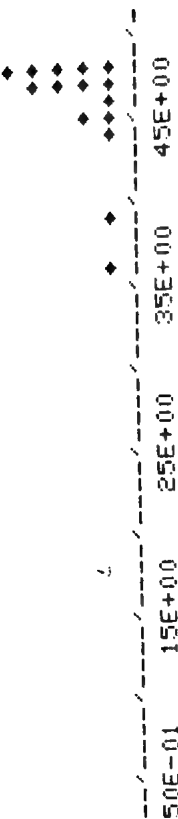
ABS. FREQ.



PRE R

MEAN = 38.5333 = 4.1 GRADE EQUIVALENT  
 STD. DEV. = 10.5076  
 SAMPLE SIZE = 15

ABS. FREQ.



POST R

MEAN = 45.5333 = 5.5 GRADE EQUIVALENT  
 STD. DEV. = 3.54293  
 SAMPLE SIZE = 15

## COMPARISON

HISTOGRAM

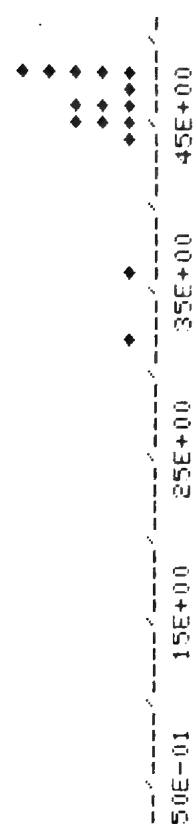
ABS. FREQ.



PRE R

MEAN = 37.8667 = 4.0 GRADE EQUIVALENT  
 STD. DEV. = 7.75395  
 SAMPLE SIZE = 15

ABS. FREQ.



POST R

MEAN = 44.8 = 5.1 GRADE EQUIVALENT  
 STD. DEV. = 4.64758  
 SAMPLE SIZE = 15

# PROJECT TELEMATH

1976-1977 TEST DATA

SCRIPPS GRADE 5

POSTTEST

PRETEST

## TELEMATH

HISTOGRAM

ABS. FREQ.



PGE R

MEAN = 32.2941 = 5.6 GRADE EQUIVALENT

STD. DEV. = 9.5116

SAMPLE SIZE = 17

ABS. FREQ.



PGE R

MEAN = 37.2412 = 6.7 GRADE EQUIVALENT

STD. DEV. = 7.02297

SAMPLE SIZE = 17

## COMPARISON

HISTOGRAM

ABS. FREQ.



MEAN = 33.9375 = 5.9 GRADE EQUIVALENT

STD. DEV. = 6.77711

SAMPLE SIZE = 16

HISTOGRAM

ABS. FREQ.



MEAN = 35.9375 = 6.5 GRADE EQUIVALENT

STD. DEV. = 8.00391

SAMPLE SIZE = 15

## APPENDIX C

### SITE DESCRIPTIVE INFORMATION

PROJECT TELEMATH  
 SPRING TEST RESULTS  
 ENCANTO ELEMENTARY SCHOOL

GRADE DATA	1973-1974			1974-1975			1975-1976		
	MEDIAN	MEAN	S.D.	MEDIAN	MEAN	S.D.	MEDIAN	MEAN	S.D.
3 R.S. G.E. %ILE	36.56 3.4 39	37.53 3.5 43	9.69	36.83 3.4 39	37.07 3.4 39	9.20	34.00 3.1 28	33.64 3.1 28	8.65
4 R.S. G.E. %ILE	11.16 3.6 10	11.71 3.7 12	5.17	39.00 4.1 38	35.75 3.8 31	10.20	39.20 4.1 38	37.44 3.9 33	6.78
5 R.S. G.E. %ILE				31.00 4.8 27	30.43 4.7 25	9.22	24.92 4.8 29	25.82 4.9 32	8.86
6 R.S. G.E. %ILE	38.00 5.7 29	35.82 5.4 23	8.61	34.85 5.3 21	32.95 5.0 17	9.08	34.00 5.9 39	32.51 5.7 37	9.26
7 R.S. G.E. %ILE									
8 R.S. G.E. %ILE									
COMBINED R.S. G.E. %ILE									

School Community Description  
Program Year 1976-77

Write a brief description of the school community. Include information about the environmental setting (rural, suburban, urban), ethnicity, language dominance, transiency rate,\* socioeconomic characteristics, opportunities for educational/cultural experiences for children, and availability of community resources for use in the school program. If a bilingual education program (Education Code Section 5761) is being conducted, describe the situational use of languages other than English in the home, in the community (stores, business, churches, and recreation), and in the school.

Encanto Elementary School is bounded on the North by Mallard Street and Federal Boulevard, on the East by 69th Street and on the South mainly by Benson, Detroit and Imperial Avenues, on the West by 60th Street and Radio Drive.

Approximately 90% of the dwellings are single-family with the remaining 10% consisting of duplexes and apartment complexes with over 12 units. However, many of the single-family dwellings are rentals which contribute to the mobility rate.

Encanto has a relatively low parent involvement in school activities (15%) due in part to a large number of single-parent families, a high mobility factor (40.9%), large families with pre-school children, both parents working full-time and a parental feeling of educational inadequacy.

The ethnic balance of Encanto School is 37.2% other white, 36.5% black, 23.9% Spanish surname, 1.4% Asian, .6% American Indian and .4% other non-white.

The school is located in an area that ranges from semi-rural to medium density population with much open space in the semi-rural area. There is a city recreation center across the street from the school and a small park and a Boy'Club near the business district. There are small businesses in the area but no large shopping centers or chain supermarkets nearby. There are two churches within the area. Policemen, firemen and community workers are available but not in the immediate area. In addition to the immediate geographical neighborhood described above, more than 150 Encanto school students come from wide areas of the city, representing more than 25 neighborhood schools. It is a school of "optional" attendance for a number of reasons. In 1972 the Board of Education of the School District designated Encanto as a "Magnet School." Three buses each day bring students from white neighborhoods to Encanto for a voluntary transfer program. In addition, Encanto has been designated a "cluster" school, offering enrollment to children eligible for gifted, learning assistance and educable mentally retarded classes. The children in all of these programs are not bound by the geographical neighborhood influences and resources to be dealt with by the school.



PROJECT TELEMATH  
SPRING TEST RESULTS  
FREESE ELEMENTARY SCHOOL

GRADE	DATA	1973-1974			1974-1975			1975-1976		
		MEDIAN	MEAN	S.D.	MEDIAN	MEAN	S.D.	MEDIAN	MEAN	S.D.
3	R.S. G.E. %ILE				31.43 2.8 20	31.97 2.9 23	7.40	31.33 2.8 20	32.03 2.9 23	7.15
4	R.S. G.E. %ILE				12.37 3.7 12	13.75 3.9 18	7.13	39.83 4.2 41	35.30 3.7 30	10.58
5	R.S. G.E. %ILE				35.91 5.4 43	33.49 5.0 33	8.69	29.25 5.2 40	29.16 5.2 40	10.05
6	R.S. G.E. %ILE				39.91 6.1 38	37.30 5.6 26	7.95	37.54 6.7 51	35.43 6.1 42	8.26
7	R.S. G.E. %ILE									
8	R.S. G.E. %ILE									
	COMBINED R.S. G.E. %ILE									

School Community Description  
Program Year 1976-77

Write a brief description of the school community. Include information about the environmental setting (rural, suburban, urban), ethnicity, language dominance, transiency rate,\* socioeconomic characteristics, opportunities for educational/cultural experiences for children, and availability of community resources for use in the school program. If a bilingual education program (Education Code Section 57611) is being conducted, describe the situational use of languages other than English in the home, in the community (stores, business, churches, and recreation), and in the school.

The Elizabeth Freese Elementary School has an enrollment in excess of 1030 pupils and is one of nine elementary schools in the Skyline Educational Planning Unit of the San Diego Unified School District. This planning unit is approximately 10 miles from the downtown area and has Spring Valley as its northern boundary, the San Diego City limits as its eastern boundary, the South Bay Freeway on the southern limits and National City on the west. The median income of families currently living in the area is \$12,104. The language in the home and in the community is predominately English. The transiency rate is approximately 6.4%, parent involvement in this school is minimal.

The housing development of the Freese attendance area was begun in the early 1960's. The homes are single family dwellings. The land use potential for the area is considered as providing continued growth for single-multi family homes. Several small retail businesses are included in the school attendance area. Among these are service stations and food stores. A Safeway chain store recently moved from the area. The building it vacated is now occupied by an independent food store. This change has been received unfavorably by those in the neighborhood. Also, residents comment on the uncleanness of the areas surrounding the business establishments.

During the 1969-70 school year the percent of children attending Freese who are designated as other white was 64%. For this school year the percent of children designated as other white is 25.7%. Of the remaining 74.3%, 45.1% of the children are black, 14.7% have Spanish surnames, 6.2% are Asian, 8.1% are other non white, and .2% are American Indian.

Near the school, the City of San Diego constructed in 1969, a branch of the public library. The library closes 3 days a week at 5:30. It is open 2 evenings a week until 8:00, and is closed on the weekend. Residents of the area have expressed disfavor that the branch is closed during the weekends. According to the branch librarian, the circulation is declining and people are not using the facility.

There is a municipal recreation facility adjacent to the Freese School property. It includes a gymnasium, meeting rooms, a play area for small children and ball diamonds. Parents of elementary age children are reluctant to allow their children to use the facility as adequate supervision is limited.

Churches are not available within easy walking distance to the school. Police effectiveness in the area is improving through the interest and encouragement of a civic organization. People United for Progress. A fire station is located in the school attendance area.

As a result of the Project, the interest and encouragement of a civic organization. People United for Progress.

PROJECT TELEMATH  
SPRING TEST RESULTS  
GREEN ELEMENTARY SCHOOL

GRADE	DATA	1973-1974			1974-1975			1975-1976		
		MEDIAN	MEAN	S.D.	MEDIAN	MEAN	S.D.	MEDIAN	MEAN	S.D.
3	R.S. G.E. %ILE				47.50 4.6 82	46.21 4.4 74	7.62	47.83 4.6 82	46.93 4.5 78	7.24
4	R.S. G.E. %ILE									
5	R.S. G.E. %ILE									
6*	R.S. G.E. %ILE	41.25 6.3 58	40.24 6.1 52	5.22	41.54 6.6 66	40.35 6.1 52	4.72	40.68 7.7 73	38.47 6.7 59	7.45
7	R.S. G.E. %ILE									
8	R.S. G.E. %ILE									
COMBINED										
R.S. G.E. %ILE										

\*Fall test scores.

School Community Description  
Program Year 1976-77

Write a brief description of the school community. Include information about the environmental setting (rural, suburban, urban), ethnicity, language dominance, transiency rate,\* socioeconomic characteristics, opportunities for educational/cultural experiences for children, and availability of community resources for use in the school program. If a bilingual education program (Education Code Section 5761) is being conducted, describe the situational use of languages other than English in the home, in the community (stores, business, churches, and recreation), and in the school.

Green School is located in a high socio-economic urban residential area of San Diego. There are fewer than 5% minorities. English is the dominant, one might even say the sole, language of the business and school community. The community members are housed in expensive and large dwellings. The majority of the parents are professional and/or managerial in their work world. A high percent of the children experience educational/cultural enrichment through the home and/or the school each year. Close to 100% of entering Kindergarten have had some nursery school experience. A wealth of community resources is available and used regularly by students, school personnel and parents including the new public library, shopping center, new and attractive churches and a partially developed recreational area at the nearby reservoir, Lake Murray.

166 Green School is presently an all portable, limited facilities school. Although classroom size is adequate, there are 15 classrooms without water. There is no auditorium or general assembly room, not a single conference room and no indoor eating space. Staff facilities are extremely sub-standard and limited. Inclement weather produces extreme hardship conditions on students, parents and staff.

The school has existed for eight years but considering the high level rating of this residential community, the school (buildings and site development) is the only blight on the community and a dramatic contrast to the students existing conditions outside of the school setting. A new Green School complex is under construction. The conditions of construction have reduced the playground space and permanent equipment has temporarily been removed. Portable classrooms were moved from the site and 10 classes are on double session. The completion date at this writing is uncertain; however, indications are that the new school should be available in September, 1976.

The school attendance zone boundaries are the natural geophysical conditions, a lake (reservoir) and a steep foothill ridge, and two heavy traffic thoroughfares. Because of declining enrollment, a review of the present attendance zone with a look at the feasibility of enlarging the attendance zone was conducted in Spring, 1975. The existing geographic conditions of the area affirmed the impracticality of several proposed changes. As with elementary schools in most areas of San Diego, Green School is experiencing a major decline in enrollment. Resale prices of the homes in the area are double the original purchase price and present economic conditions preclude their purchase by families with young children.

6.49%

\*Transiency rate =  $\frac{\text{Total accumulative enrollment minus average daily enrollment}}{\text{Average daily enrollment}}$

PROJECT TELEMATH  
SPRING TEST RESULTS  
LINDA VISTA ELEMENTARY SCHOOL

GRADE	DATA	1973-1974			1974-1975			1975-1976		
		MEDIAN	MEAN	S.D.	MEDIAN	MEAN	S.D.	MEDIAN	MEAN	S.D.
3	R.S. G.E. %ILE	35.91 3.3 36	35.99 3.3 36	7.83	34.71 3.3 33	35.25 3.3 33	7.59	35.12 3.3 33	35.15 3.3 33	8.57
4	R.S. G.E. %ILE	11.00 3.6 10	11.83 3.7 12	5.05	38.87 4.1 38	34.40 3.7 28	11.48	37.10 3.9 33	33.10 3.6 26	11.29
5	R.S. G.E. %ILE				29.16 4.7 23	28.80 4.7 23	10.27	26.50 5.0 35	26.44 4.9 32	9.61
6	R.S. G.E. %ILE	36.37 5.4 23	33.91 5.2 19	10.00	37.00 5.6 26	34.83 5.3 21	8.25	32.50 5.7 37	31.17 5.5 32	9.42
7	R.S. G.E. %ILE									
8	R.S. G.E. %ILE									
COMBINED										
R.S. G.E. %ILE										

# School Community Description Program Year 1976-77

Write a brief description of the school community. Include information about the environmental setting (rural, suburban, urban), ethnicity, language dominance, transiency rate,\* socioeconomic characteristics, opportunities for educational/cultural experiences for children, and availability of community resources for use in the school program. If a bilingual education program (Education Code Section 5761) is being conducted, describe the situational use of languages other than English in the home, in the community (stores, business, churches, and recreation), and in the school.

Linda Vista School is within the boundaries of Linda Vista Road, Comstock Street, Tecolote Canyon and Genesee Avenue. The community consists of dwellings in the form of six-plex apartments, duplexes, individual homes, a shopping center, churches and schools. The community was originally built as a model self-contained community to house families of defense workers of WWII. Linda Vista opened in the present facility in September, 1942. As the need for government housing decreased in the early 50's, the residents were given the option to buy homes in which they resided.

The young families who bought the individual homes have grown up, and no longer have elementary age children. The enrollment has decreased to the point of redistricting and thus enlarging the attendance area.

The large number of apartment dwellings, contribute to the high mobility rate of 86.5% in 1973-74.

The pupil ethnic distribution for 1975-76 was 29.9% Spanish Surname, 44.7% other white, 15.9% black, 2.6% Asian, .3% American Indian and 6.6% other nonwhite. Included in this are 32 Vietnamese students enrolled for the first time in United States' schools who speak no English and are included in a federal program of assistance for Vietnamese refugees. Linda Vista does not have sufficient staff members who can communicate with the home adequately as over 40% of the area is either bilingual or does not speak English. One community aide is bilingual in Spanish and another aide is bilingual in Vietnamese.

Available to the community in 1975-76 was the option of attending a Year Round Program or a Traditional Program. This option continues to be available.

There is a park approximately one block from the school. The availability of firemen, policemen, librarian and other community workers as school resources is adequate.

\*Transiency rate =  $\frac{\text{Total accumulative enrollment minus average daily enrollment}}{\text{Average daily enrollment}}$

\*Transiency rate =  $\frac{\text{Total accumulative enrollment minus average daily enrollment}}{\text{Average daily enrollment}}$

PROJECT TELEMATH  
SPRING TEST RESULTS  
MARVIN ELEMENTARY SCHOOL

GRADE	DATA	1973-1974			1974-1975			1975-1976		
		MEDIAN	MEAN	S.D.	MEDIAN	MEAN	S.D.	MEDIAN	MEAN	S.D.
3	R.S. G.E. %ILE	46.14 4.4 74	45.40 4.3 71	7.16	44.28 4.3 68	44.11 4.3 68	8.59	43.00 4.1 62	37.60 3.5 43	8.22
4	R.S. G.E. %ILE									
5	R.S. G.E. %ILE									
6*	R.S. G.E. %ILE	40.40 6.1 52	38.22 5.7 42	7.74	39.14 5.9 46	37.36 5.6 38	7.15	39.50 7.3 67	38.04 6.7 59	7.29
7	R.S. G.E. %ILE									
8	R.S. G.E. %ILE									
COMBINED										
R.S. G.E. %ILE										

\*Fall test scores.

**School Community Description**  
**Program Year 1976-77**

Write a brief description of the school community. Include information about the environmental setting (rural, suburban, urban), ethnicity, language dominance, transiency rate,\* socioeconomic characteristics, opportunities for educational/cultural experiences for children, and availability of community resources for use in the school program. If a bilingual education program (Education Code Section 5761) is being conducted, describe the situational use of languages other than English in the home, in the community (stores, business, churches, and recreation), and in the school.

Marvin School is located in a bedroom community of San Diego. It is a white, predominately middle class area with just a few affluent blacks beginning to move in. Family incomes range from well-to-do to those on welfare. The area has a fine junior high school. One university and one community college are nearby. Efforts to improve ethnic balance are being made through the voluntary and subsidized bussing programs.

Marvin has been identified as a school where innovative and creative educational ideas are encouraged by staff, students, and parents. There are several funded programs in operation such as Title IV-C in Telemath for the upper grades, gifted programs, spelling research, and out-of-state field trips.

170

\*Transiency rate =  $\frac{\text{Total accumulative enrollment minus average daily enrollment}}{\text{Average daily enrollment}}$  = 7.59%

1973-1974	1974-1975	1975-1976	
		MEAN	S.D.
5.06		5.0	5.0



\*Transiency rate = Total accumulative enrollment minus average daily enrollment  
Average daily enrollment

= 7.59%

PROJECT TELEMATH  
SPRING TEST RESULTS  
SCRIPPS ELEMENTARY SCHOOL

GRADE	DATA	1973-1974			1974-1975			1975-1976		
		MEDIAN	MEAN	S.D.	MEDIAN	MEAN	S.D.	MEDIAN	MEAN	S.D.
3	R.S. G.E. %ILE	48.83 4.8 87	46.14 4.4 74	8.60	45.16 4.3 71	44.50 4.3 71	6.92	51.12 5.0 91	48.32 4.6 82	7.72
4	R.S. G.E. %ILE									
5	R.S. G.E. %ILE									
6*	R.S. G.E. %ILE	41.00 6.3 58	39.81 6.1 52	5.55	41.75 6.6 66	40.20 6.1 52	5.98	38.16 6.7 59	36.67 6.5 56	7.29
7	R.S. G.E. %ILE									
8	R.S. G.E. %ILE									
COMBINED										
R.S. G.E. %ILE										

\*Fall test scores.

School Community Description  
Program Year 1976-77

Write a brief description of the school community. Include information about the environmental setting (rural, suburban, urban), ethnicity, language dominance, transiency rate,\* socioeconomic characteristics, opportunities for educational/cultural experiences for children, and availability of community resources for use in the school program. If a bilingual education program (Education Code Section 5761) is being conducted, describe the situational use of languages other than English in the home, in the community (stores, business, churches, and recreation), and in the school.

Scripps Elementary School is located in "the shores" area of La Jolla; a sunny, informal, affluent, resort beach community of northern San Diego. The mountains on three sides and the Pacific Ocean on the west create natural boundaries which form the attendance area and which separate the community from the other four La Jolla elementary school attendance areas and other sections of San Diego. The community is 98% residential and is composed mostly of white, English speaking, professional people who are actively involved in community affairs, the arts, and in the education of their children. The entire La Jolla community is rich in cultural resources which are used to extend and enrich the educational program. There are museums, art galleries, seashore and canyon, stores, banks, brokerage firms, and the sprawling campus of U.C.S.D. of which Scripps Institution of Oceanography is a notable part. The eight to ten non-English speaking students who register each year are children of scientists or doctors on sabbatical leave for six to twelve months to study at U.C.S.D. medical school or S.I.O.

Eighty percent of the student body are white, upper middle or upper class who live within the Scripps' attendance area. Eighteen percent are predominately white, middle and upper middle class children who reside either within the attendance area or in unassigned areas within five miles of Scripps where there are no schools available. Two percent of the children are voluntary ethnic transfer students who come by bus from the black communities of southeast San Diego.

All of our children are well-cared for, alert, happy, highly-motivated, success oriented, and like school.

Transiency rate was computed from April 1, 1975 - March 31, 1976.  
360

(131 new enrollees in gr. 1-6) - 266

\*Transiency rate =  $\frac{\text{Total accumulative enrollment minus average daily enrollment}}{\text{Average daily enrollment}}$  - 35%

APPENDIX D  
EVALUATION INSTRUMENTS  
AND  
RECORDKEEPING FORMS

PROJECT TELEMATH  
EQUIPMENT PERFORMANCE CHECKLIST

NOTE: In order to receive Telemath equipment, at least one person at each school site must demonstrate proper use of the computer/videographic equipment. The following checklist indicates the minimum competence which needs to be demonstrated.

This performance test will begin with the system off and all programs, keyboards and input modules as if in proper storage.

THE TELEMATH OPERATOR WILL BE ABLE TO DEMONSTRATE THE FOLLOWING:

1. How to set-up and activate the system (plug-in, set-up keyboards, attach input module, etc.)
2. How to "program" the system
3. Knowledge of the following keys on the keyboard
  - a. Key for "yes" response.
  - b. Key for "no" response.
  - c. Key for "greater than".
  - d. Keys to enter a five-digit decimal fraction (hundreds through hundredths).
  - e. Key to request instructions.
  - f. Key to input initials.
  - g. Key for "erasing" an incorrect number before it has been entered.
  - h. Keys (code number) to use "teacher options mode".
4. Using the program which you entered in #2 above, activate the system and simulate two students signing-in and working with the activity through one cycle.
5. Interrupt the above, sending the program back to the instruction phase.
6. After #4 and #5 above, call for "teacher option mode". Reduce response time, increase the review loop length, and reduce the random digit range. Now repeat #4 above.
7. Reprogram the system with the same program by:
  - a. Recycling the program
  - b. Reentering the program tape
8. Demonstrate correct storage of the equipment and programs.

SERVICE EFFECTIVENESS FORM

TO:

FROM: Evaluation Team

DATE: \_\_\_\_\_ ACTIVITY \_\_\_\_\_

THE OBJECTIVE OF TODAY'S SESSION WAS

1. Please indicate, by circling the appropriate number, your rating of the effectiveness of today's session in meeting the above objective.

<u>Effectiveness of Service</u>					
<u>NONE</u>	<u>LOW</u>	<u>MODERATE</u>	<u>HIGH</u>	<u>VERY HIGH</u>	<u>CANNOT DETERMINE</u>
1	2	3	4	5	6

2. COMMENTS (If Any): \_\_\_\_\_

3. RECOMMENDED CHANGES (If Any): \_\_\_\_\_

4. RECOMMENDED FOLLOW-UP ACTIVITIES (If Any): \_\_\_\_\_

# EVALUATION SERVICES

EDUCATION CENTER  
4100 Normal St, San Diego, Ca 92103  
(714) 298-4681

DATE: May 18, 1977

MEMO TO: Teachers of Project TELEMATH Students

FROM: Grant Behnke **B**

SUBJECT: FINAL ACHIEVEMENT TESTING

Attached you will find a class set of tests for your students which I am asking that you administer May 24, 25 or 26 -- at your convenience. Preliminary review of the standardized test results indicate that the TELEMATH project is having an impact upon student computational skills. Since the attached criterion-referenced tests are more closely correlated to the curriculum content for Grades 4 and 5, the results of these tests should be very enlightening. A valid testing situation is very important. Please encourage students (both TELEMATH and comparison) to do as well as they can.

If you have a Grade 4 class, you should have a set of blue tests with 36 computational items (printed on both sides). [Please note that item #24 has four circles shaded. Please bring this to the children's attention.]

If you have a Grade 5 class, you should have a set of green tests with 40 computational items (printed on both sides).

You are being asked to administer the appropriate test to your students who are TELEMATH students and to those who are comparison students. You will find a sufficient number of tests provided to test your whole class -- if that would be easier for you. TELEMATH personnel will score the tests, and I will provide you a roster of results.

The tests are not timed. You should provide ample time for students to complete the whole test. Students should be able to complete the 4th grade test in 25 to 35 minutes. The 5th graders will need approximately 30 to 40 minutes. Please encourage the students who finish early to not disturb those who are still working.

Upon completion of testing, please check that each student has written his/her first and last name, then return the materials to your TELEMATH Key Teacher.

Your cooperation with this testing, as well as your participation in the recordkeeping activities this year have been appreciated. If you have any questions, please feel free to call me (293-8506) or ask your TELEMATH Key Teacher. Thank you!

GB:jf  
Attachment

Name \_\_\_\_\_

Date \_\_\_\_\_

## FINAL ACHIEVEMENT TEST, LEVEL 4

1. Multiply: $\begin{array}{r} 7 \\ \times 3 \\ \hline 21 \end{array}$ SAMPLE	2. Divide: $\begin{array}{r} 5R1 \\ 7 \overline{)36} \\ \underline{35} \\ 1 \end{array}$ SAMPLE	3. Add: $\begin{array}{r} 5604 \\ + 2604 \\ \hline \end{array}$	4. Add: $\begin{array}{r} 3275 \\ + 2936 \\ \hline \end{array}$
5. Subtract: $\begin{array}{r} 8630 \\ - 4592 \\ \hline \end{array}$	6. Subtract: $\begin{array}{r} 7481 \\ - 5429 \\ \hline \end{array}$	7. Multiply: $\begin{array}{r} 8 \\ \times 6 \\ \hline \end{array}$	8. Multiply: $\begin{array}{r} 6 \\ \times 7 \\ \hline \end{array}$
9. Divide: $63 \div 9 = \underline{\hspace{2cm}}$	10. Divide: $81 \div 9 = \underline{\hspace{2cm}}$	11. Multiply: $\begin{array}{r} 37 \\ \times 6 \\ \hline \end{array}$	12. Multiply: $\begin{array}{r} 83 \\ \times 9 \\ \hline \end{array}$
13. Multiply: $\begin{array}{r} 674 \\ \times 8 \\ \hline \end{array}$	14. Multiply: $\begin{array}{r} 536 \\ \times 5 \\ \hline \end{array}$	15. Divide: $5 \overline{)29}$	16. Divide: $7 \overline{)39}$

17. Divide:

$$5 \overline{)80}$$

4WD3

18. Divide:

$$3 \overline{)65}$$

4WD3

19. Multiply:

$$\begin{array}{r} 363 \\ \times 400 \\ \hline \end{array}$$

4WM4

20. Multiply:

$$\begin{array}{r} 555 \\ \times 50 \\ \hline \end{array}$$

4WM4

21. Divide:

$$5 \overline{)750}$$

4WD4

22. Divide:

$$6 \overline{)635}$$

4WD4

23. What fraction of the set is shaded?



4FN1

24. What fraction of the set is shaded?



4FN1

25.

$$\frac{3}{4} = \frac{\quad}{8}$$

4FN2

26.

$$\frac{2}{5} = \frac{\quad}{10}$$

4FN2

27. Add:

$$\begin{array}{r} \frac{3}{8} \\ + \frac{2}{8} \\ \hline \end{array}$$

4FA1

28. Add:

$$\begin{array}{r} \frac{3}{10} \\ + \frac{4}{10} \\ \hline \end{array}$$

4FA1

29. Subtract:

$$\begin{array}{r} \frac{6}{10} \\ - \frac{3}{10} \\ \hline \end{array}$$

4FS1

30. Subtract:

$$\begin{array}{r} \frac{5}{8} \\ - \frac{2}{8} \\ \hline \end{array}$$

4FS1

31. Add:

$$\begin{array}{r} \frac{2}{3} \\ + \frac{1}{6} \\ \hline \end{array}$$

4FA2

32. Add:

$$\begin{array}{r} \frac{3}{4} \\ + \frac{1}{8} \\ \hline \end{array}$$

4FA2

33. Subtract:

$$\begin{array}{r} \frac{6}{10} \\ - \frac{1}{2} \\ \hline \end{array}$$

4FS2

34. Subtract:

$$\begin{array}{r} \frac{3}{4} \\ - \frac{5}{8} \\ \hline \end{array}$$

4FS2

35.

Write the decimal for four tenths.

\_\_\_\_\_

4DN1

36.

Write the decimal for seven tenths.

\_\_\_\_\_

4DN1



Name \_\_\_\_\_ Date \_\_\_\_\_

FINAL ACHIEVEMENT TEST, LEVEL 5

<p>1. Multiply:</p> $\begin{array}{r} 4 \\ \times 6 \\ \hline 24 \end{array}$ <p>SAMPLE</p>	<p>2. Divide:</p> $\begin{array}{r} 5R4 \\ 5 \overline{)29} \\ \underline{25} \\ 4 \end{array}$ <p>SAMPLE</p>	<p>3. Add:</p> $\begin{array}{r} 678 \\ 3957 \\ + 424 \\ \hline \end{array}$	<p>4. Add:</p> $\begin{array}{r} 1567 \\ 3954 \\ + 2763 \\ \hline \end{array}$
<p>5. Subtract:</p> $\begin{array}{r} 9466 \\ - 3198 \\ \hline \end{array}$	<p>6. Subtract:</p> $\begin{array}{r} 5004 \\ - 2957 \\ \hline \end{array}$	<p>7. Multiply:</p> <p>6 x 7 = _____</p>	<p>8. Multiply:</p> <p>8 x 7 = _____</p>
5WS1	5WS1	5WM1	5WM1
<p>9. Multiply:</p> $\begin{array}{r} 68 \\ \times 6 \\ \hline \end{array}$	<p>10. Multiply:</p> $\begin{array}{r} 896 \\ \times 7 \\ \hline \end{array}$	<p>11. Divide:</p> <p>54 ÷ 9 = _____</p>	<p>12. Divide:</p> <p>56 ÷ 7 = _____</p>
5WM2	5WM2	5WD1	5WD1
<p>13. Divide:</p> <p>7)92</p>	<p>14. Divide:</p> <p>4)79</p>	<p>15. Multiply:</p> $\begin{array}{r} 98 \\ \times 63 \\ \hline \end{array}$	<p>16. Multiply:</p> $\begin{array}{r} 87 \\ \times 96 \\ \hline \end{array}$
5WD2	5WD2	5WM3	5WM3

<p>Multiply:</p> $\begin{array}{r} 908 \\ \times 56 \\ \hline \end{array}$ <p>5WM4</p>	<p>18. Multiply:</p> $\begin{array}{r} 468 \\ \times 28 \\ \hline \end{array}$ <p>5WM4</p>	<p>19. Divide:</p> $3 \overline{)722}$ <p>5WD3</p>	<p>20. Divide:</p> $8 \overline{)649}$ <p>5WD3</p>
<p>21. Divide:</p> $47 \overline{)408}$ <p>5WD4</p>	<p>22. Divide:</p> $14 \overline{)670}$ <p>5WD4</p>	<p>23.</p> $\frac{5}{9} = \frac{\quad}{18}$ <p>5FN1</p>	<p>24.</p> $\frac{3}{5} = \frac{\quad}{15}$ <p>5FN1</p>
<p>25. Name this fraction in simplest terms.</p> $\frac{9}{12} = \underline{\hspace{2cm}}$ <p>5FN2</p>	<p>26. Name this fraction in simplest terms.</p> $\frac{5}{20} = \underline{\hspace{2cm}}$ <p>5FN2</p>	<p>27. Rename as a mixed number.</p> $\frac{10}{8} = \underline{\hspace{2cm}}$ <p>5FN3</p>	<p>28. Rename as a mixed number.</p> $\frac{31}{4} = \underline{\hspace{2cm}}$ <p>5FN3</p>
<p>29. Add:</p> $\begin{array}{r} 1\frac{4}{5} \\ + 3\frac{3}{5} \\ \hline \end{array}$ <p>5FA1</p>	<p>30. Add and name in simplest terms.</p> $\begin{array}{r} 6\frac{3}{8} \\ + 4\frac{3}{8} \\ \hline \end{array}$ <p>5FA1</p>	<p>31. Subtract and name in simplest terms.</p> $\begin{array}{r} 2\frac{5}{8} \\ - 1\frac{3}{8} \\ \hline \end{array}$ <p>5FS1</p>	<p>32. Subtract and name in simplest terms.</p> $\begin{array}{r} 5\frac{1}{8} \\ - 2\frac{5}{8} \\ \hline \end{array}$ <p>5FS1</p>
<p>33. Name the <u>least common denominator</u> for the pair of fractions:</p> $\frac{1}{3} \text{ and } \frac{2}{6} \underline{\hspace{2cm}}$ <p>5FN4</p>	<p>34. Name the <u>least common denominator</u> for the pair of fractions:</p> $\frac{5}{6} \text{ and } \frac{4}{9} \underline{\hspace{2cm}}$ <p>5FN4</p>	<p>35. Add and name in simplest terms.</p> $\frac{2}{3} + \frac{1}{4} = \underline{\hspace{2cm}}$ <p>5FA2</p>	<p>36. Add and name in simplest terms.</p> $\begin{array}{r} \frac{4}{9} \\ + \frac{2}{3} \\ \hline \end{array}$ <p>5FA2</p>
<p>37. Subtract and name in simplest terms.</p> $\frac{5}{6} - \frac{2}{3} = \underline{\hspace{2cm}}$ <p>5FS2</p>	<p>38. Subtract and name in simplest terms.</p> $\begin{array}{r} \frac{10}{15} \\ - \frac{1}{3} \\ \hline \end{array}$ <p>5FS2</p>	<p>39. Rename as a fractional number:</p> $.6 = \underline{\hspace{2cm}}$ <p>5DN2</p>	<p>40. Rename as a decimal fraction:</p> $\frac{28}{100} = \underline{\hspace{2cm}}$ <p>5DN2</p>

PROJECT TELE-MATH  
ACTIVITY RATING FORM

This form is intended to provide detailed feedback of how well a specific activity is functioning on the Tele-Math System. We hope to be able to improve weaknesses which you may observe as you and your students use the system. Thank you for your cooperation.

Would you please respond to the highlighted categories below for the activity/program

VARIABLE/CONDITION	EXCELLENT	GOOD	SATISFACT.	POOR	UNDECIDED
<u>LEARNER VARIABLES</u>					
<u>INSTRUCTIONS</u>					
Clarity					
Reading level					
<u>ACTIVITY</u>					
Difficulty level					
Meaningful (relative to the objective in question)					
Feedback (Timing, format, etc.)					
Rate of activity					
Motivational					
Opportunities for active participation					
<u>ENVIRONMENTAL VARIABLES</u>					
Size, format and clarity of display					
Ease of operation of the activity					
Presentation rate					
Adaptability of activity to different group sizes					
Independence of the activity from supervision					
Degree of help of the "prompting clues"					
Length of the cycle of the program					
<u>MEDIA VARIABLES</u>					
Freedom of the program of "bugs" (programing errors)					
Input, initiation, operation and termination of the program as planned/documentd		182			

(over)

ACTIVITY RATING FORM  
Page 2

- Number of students in each group for which the activity is appropriate  
(circle as may apply).

1      2      3      4      5      6      small groups to 10

Comments (with respect to size of group) \_\_\_\_\_

- General comments and/or recommendations for activity improvement \_\_\_\_\_

Any comments or clarifications of the ratings on the other side of this  
paper should be expressed in the space below. Thank You for your time !

QUESTIONS FOR TELEMATH AIDES

- 1) How do you rate the effectiveness of the TELEMATH equipment and programs in meeting the following goals ?
- |   | low |   |   |   | high |
|---|-----|---|---|---|------|
| a) Maintaining student interest in math activities                                  | 1   | 2 | 3 | 4 | 5    |
| b) Providing reinforcement activities at a level appropriate to the student's needs | 1   | 2 | 3 | 4 | 5    |
| c) Actually <u>teaching</u> a skill which the student does not already know         | 1   | 2 | 3 | 4 | 5    |
| d) Providing a student an opportunity to be successful in a mathematical activity   | 1   | 2 | 3 | 4 | 5    |
- 2) Are you encountering difficulties in getting the students on the TELEMATH system for sixty minutes a week ?
- |                          | yes | no |
|--------------------------|-----|----|
| if yes -- examples (why) |     |    |
- 3) Are you encountering difficulties in maintaining the records which the project requires ?
- |                    | yes | no |
|--------------------|-----|----|
| if yes -- examples |     |    |
- 4) Questions re: Implementation Report
- 5) In general, how are things going -- Do you have any other observations which you would like to share ?

QUESTIONS FOR TELEMATH CENTER TEACHERS

- 1) Are you encountering any difficulties in receiving information from your classroom teachers with respect to which of the objectives the students need help/reinforcement ?
- yes                      no

if yes -- examples

- 2) Are you encountering any difficulties in scheduling students with similar needs on the TELEMATH equipment ?
- yes                      no

if yes -- examples / why

- 3) Are you encountering any difficulties w.r.t. the classroom teachers cooperating with you/your aide in maintaining track of which objectives the students have received instruction and mastered ?
- yes                      no

if yes -- details / how common ?

- 4) Questions re: Implementation Report

- 5) In general, how are things going -- Do you have any other observations which you would like to share ?

QUESTIONS FOR CLASSROOM TEACHERS OF TELEMATH STUDENTS

- 1) Are you encountering any difficulties with respect to the pull-out nature of the TELEMATH program ?

yes no

if yes -- examples

- 2) Are you aware of which of your students are TELEMATH participants ?

yes no

-- Are these students receiving more instruction/instructional time (with respect to mathematics) than your other students ?

- if yes, probe no

- 3) Do you feel that the TELEMATH program complements your instructional efforts in the classroom -- or is it just something extra ?

Comments complementary extra

- 4) Do you have any general comments of how the project is going from your perspective ?

Comments

(If time, ask about recordkeeping w.r.t. objectives instructed and objectives mastered, impact of Implementation Report [e.g., communications], student reactions, etc.)

## QUESTIONS FOR PRINCIPALS

Because of your unique position as the instructional leader of your school, you are in a position to receive input from various sources with respect to new programs such as TELEMATH.

- 1) With this in mind, would you share with me any positive or negative comments which you have heard from

Parents

Students

(Sending) Classroom Teachers

Key Telemath Teacher

Telemath Aides

Others

- 2) What are your general impressions of the project ?

- 3) (Impact of Implementation Report)

- Did you have a chance to read the 1st quarter Implementation Report ?

- Did you have any questions or reactions ?



## PROJECT TELEMATH

### RULES FOR RANDOM ASSIGNMENT

After enrollment figures and student names have been obtained from each school:

- Each classroom's students will be sequentially ordered and assigned a number (each grade level separately).
- The proportion of students needed for the respective classrooms will be calculated using the form which has been prepared.
- The randomization program RAN1 (from IDA family) will be used to generate a list of "Tele-Math", "Control" and "Alternates". The Tele-Math group will be the first group which is listed; the second set of numbers will be for the Control group. In addition a group of alternates will be generated (approximately 10% of the number of participating students). These "alternates" will be assigned to Tele-Math or Control groups in an alternating fashion (as one would go down the list of random numbers).

Only under very extreme circumstances should students be interchanged between groups. No changes should occur after November 1 ("drops", of course, are the exception).

## SELECTED BASIC COMPUTATION OBJECTIVES FOR MATHEMATICS

### Level 3

- 3WA1 The student will be able to add any 2 1-digit whole numbers whose sum is 18 or less (basic facts).
- 3WS1 The student will be able to subtract any 2 whole numbers whose sum is 18 or less (basic facts).
- 3WA2 The student will be able to add 2 whole numbers less than 100, renaming as necessary.
- 3WS2 The student will be able to subtract 2 whole numbers less than 100, renaming as necessary.
- 3FN1 The student will be able to identify halves, thirds, fourths, fifths, sixths of a region or set and write the fraction.
- 3WM2 The student will be able to multiply 2 numbers with 1 factor less than 6 and 1 less than 10 (basic facts).
- 3WM3 The student will be able to multiply 2 numbers less than 10 (basic facts).
- 3WD2 The student will be able to divide a number using basic facts with 1 factor less than 6 and 1 less than 10.
- 3WA3 The student will be able to add 2 whole numbers less than 100 without renaming.
- 3WS3 The student will be able to subtract 2 whole numbers less than 1000 without renaming.
- 3WA4 The student will be able to add 2 whole numbers less than 1000, renaming as necessary.
- 3WS4 The student will be able to subtract 2 whole numbers less than 1000, renaming as necessary.
- 3WD3 The student will be able to divide a number using basic facts with no remainder.

#### Level 4

- 4WA1 The student will be able to add two whole numbers less than 10,000, renaming as necessary.
- 4WS1 The student will be able to subtract two whole numbers less than 10,000, renaming as necessary.
- 4WM1 The student will be able to multiply two numbers less than 10 (basic facts).
- 4WD1 The student will be able to divide a number using basic facts with no remainder.
- 4WM2 The student will be able to multiply a number less than 100 by a number less than 10, renaming as necessary.
- 4WM3 The student will be able to multiply a number less than 1000 by a number less than 10, renaming as necessary.
- 4WD2 The student will be able to divide a number using basic facts and identify a remainder--such as 
$$\begin{array}{r} 7 \text{ R}2 \\ 3 \overline{)23} \end{array}$$
- 4WD3 The student will be able to divide a number less than 100 by a number less than 10, first without, then with remainders ( $64 \div 2 = 32$ ;  $87 \div 4 = 21 \text{ R}3$ ).
- 4WM4 The student will be able to multiply a number by a multiple of 10 or 100 using zero as a placeholder.
- 4WD4 The student will be able to divide a number less than 1000 by a number less than 10 with no estimating, first without, then with remainder--( $697 \div 3 = 232 \text{ R}1$ ).
- 4FN1 The student will be able to identify halves, thirds, fourths, fifths, sixths, eighths, and tenths of a region or set and write the fraction.
- 4FN2 The student will be able to write a fraction equivalent to a given fraction (halves, thirds, fourths, fifths, sixths, eighths, and tenths).
- 4FA1 The student will be able to add fractions with like denominators.
- 4FS1 The student will be able to subtract fractions with like denominators.
- 4FA2 The student will be able to add two fractions with unlike denominators (halves, thirds, fourths, fifths, sixths, eighths, tenths).
- 4FS2 The student will be able to subtract two fractions with unlike denominators (halves, thirds, fourths, fifths, sixths, eighths, tenths).

Level 5

- 5WA1 The student will be able to add three whole numbers less than 10,000, renaming as necessary.
- 5WS1 The student will be able to subtract two numbers less than 10,000, renaming as necessary.
- 5WM1 The student will be able to multiply two numbers less than 10 (basic facts).
- 5WM2 The student will be able to multiply a number less than 1000 by a number less than 10, renaming as necessary.
- 5WD1 The student will be able to divide a number less than 100 by a number less than 10 with and without a remainder.
- 5WM3 The student will be able to multiply two whole numbers which are less than 100, renaming as necessary.
- 5WM4 The student will be able to multiply a number less than 1000 by a number less than 100, renaming as necessary.
- 5WD2 The student will be able to divide a number less than 1000 by a number less than 10, with and without a remainder.
- 5WD3 The student will be able to divide a number less than 1000 by a number less than 100, with and without remainders.
- 5FN1 The student will be able to write an equivalent fraction for a given fraction.
- 5FN2 The student will be able to write a fraction in simplest terms.
- 5FN3 The student will be able to rename mixed numbers as improper fractions and vice versa.
- 5FA1 The student will be able to add fractions and mixed numbers with like denominators, renaming the answer in simplest terms.
- 5FS1 The student will be able to subtract fractions and mixed numbers with like denominators, renaming the answer in simplest terms.
- 5FN4 The student will be able to name the least common denominator for a pair of fractions.
- 5FA2 The student will be able to add fractions with unlike denominators, renaming the answer in simplest terms.
- 5FS2 The student will be able to subtract fractions with unlike denominators, renaming the answer in simplest terms.
- 5DN2 The student will be able to rename fractions in tenths and hundredths as decimal fractions and vice versa.

## Level 6

- 6WA1 The student will be able to add four whole numbers, renaming as necessary.
- 6WS1 The student will be able to subtract two whole numbers, renaming as necessary.
- 6WM1 The student will be able to multiply a number less than 1000 by a number less than 100, renaming as necessary.
- 6WM2 The student will be able to multiply any number by a number less than 1000.
- 6WD1 The student will be able to divide any number by a number less than 1000 with and without remainders.
- 6WN2 The student will be able to name the prime factors of a number (less than 100).
- 6FN1 The student will be able to write an equivalent fraction for a given fraction and write the fraction in simplest terms.
- 6FN2 The student will be able to rename mixed numbers as improper fractions and vice versa, renaming the answer in simplest terms.
- 6FA1 The student will be able to add fractions, renaming the answer as a mixed numeral expressed in simplest terms.
- 6FS1 The student will be able to subtract fractions, renaming the answer as a mixed numeral.
- 6FA2 The student will be able to add mixed numbers with unlike denominators, renaming the answer in simplest terms.
- 6FS2 The student will be able to subtract mixed numbers with unlike denominators, renaming the answer in simplest terms.
- 6FM1 The student will be able to multiply with fractions and mixed numerals.
- 6FD1 The student will be able to divide with fractions and mixed numerals.
- 6DA1 The student will be able to add with decimals to hundredths, renaming as necessary.
- 6DS1 The student will be able to subtract with decimals to hundredths, renaming as necessary.
- 6DM1 The student will be able to multiply a whole number and a number expressed in decimal form or two decimal numbers (both hundredths).
- 6DD1 The student will be able to divide a number in decimal form by a whole number or by another number in decimal form (by tenths, e.g., 0.1, 0.2).
- 6DN2 The student will be able to convert a fraction to a decimal and vice versa.

193

CLASS RECORD CARD, LEVEL 5

[illegible]

## PROJECT TELEMATH STUDENT ROSTER

**TEACHER**

SCHOOL.

RM. NUMBER

PAGE

OF

GRADE.

GROUP: TELEMATH CONTROL

[illegible]

I=Instructed, M=Mastered, %=Percent Mastery





## EVALUATION SERVICES

EDUCATION CENTER

4100 Normal St. San Diego, Ca 92103

(714) 298-4681

DATE: November 30, 1976

MEMO TO: TELEMATH Key Teachers/TELEMATH Aides

FROM: Grant Behnke <sup>GB</sup>

SUBJECT: FIRST QUARTER SUMMARY OF DATA FOR OBJECTIVE 1.0

Attached is a set of rosters (by teacher and grade level) on which I need you to provide some data. A sample of what I need is also attached.

The data needed are in relation to TELEMATH Objective 1.0. The objective states,

Given one hour per week of computer/videographic instruction, October 1976 - May 1977, TELEMATH target students will master 80% of the computation objectives in which they receive instruction.

This objective lends itself to a summary of progress, whereas the other student instructional objectives of the project are pretty much end-of-year achievement tests.

When I provided you the yellow recordkeeping forms to indicate "time on the system", I also talked with you regarding the need for Objective 1.0 data on a quarterly basis. I hope to provide you and your teachers a summary of how things are progressing relative to the attainment of this objective. In order to provide you this summary, I need the following two bits of data for each TELEMATH student.

- 1 - How many math computational skill objectives has each student received instruction? (This should be a summary of the records which your classroom teachers are already keeping.)
- 2 - How many of the objectives (mentioned above) has each student mastered? (exhibited competency)

Both of these "data bits" should be in the context of the instruction which the classroom teacher and Project TELEMATH are providing the students. Not just what the students are getting on the TELEMATH system. For any objective which the student is able to exhibit "mastery" on the pretest (and hence does not need formal instructional activities), count this objective as both "instructed" and "mastered". I know that this memo does not explain in detail what I want; I hope to further clarify this during my site visit.

GB:jf

Attachment

# STUDENT ROSTER

SCHOOL X TEACHER Y  
 RM. NUMBER 2 PAGE 1 OF 1  
 GRADE 5 GROUP: TELEMATH CONTROL

STUDENT'S NAME	N.R.T. DATA		1st QUARTER			2nd QUARTER			3rd QUARTER			4th QUARTER		
	PRE	POST	I	M	Z	I	M	Z	I	M	Z	I	M	Z
TOMMY TELEMATH			4	3										
VANCE MILLS			5	3										
TAMMY TELEMATH			3	2										
ETC.														

## CLASS RECORD CARD, LEVEL 5

Names	Whole Numbers										Fractions								Deci- mals	Measure
	SWN1	SWA1	SWS1	SWM1	SWM2	SWD1	SWM3	SWD2	SWD3	SWN4	SWN2	SWN3	SWA2	SWS2	SWN5	SWD4	SWM4	SWR1	SWV1	SWV2
TOMMY TELEMATH	X	X	X	X	X	X	X	X	X											
VANCE MILLS	X	X	X	X	X	X	X	X	X											
TAMMY TELEMATH	X	X	X	X	X	X	X	X	X											
ETC.																				

CLASS RECORD CARD

(INSTRUCTED)  
(MASTERED)

OLE

(INSTRUCTED)  
 (MASTERED)  
**SAMPLE**

NAME \_\_\_\_\_

GRADE

STATUS

222

(OR  
TEACHER)

ETC.

CSZAPLE

GRADE

SSA 3346 LE  
AD

APPENDIX E  
MANAGEMENT FORMS

OBJECTIVE NUMBER	OPERATION OR TYPE OF DATA	INSTRUMENTS AND/OR SOURCES	WHO IS INVOLVED?	WHO GATHERS DATA?	CRITICAL DATES
1.0	CRT - Objective Mastery	District developed, D.P.T. or site- selected CRTs	Tele-Math pupils; 180 - 4th graders 180 - 5th graders (Approx. 30 pupils per grade level per school)	Site personnel (Math center teacher or classroom teacher) and Tele-Math coordinator (Mills)	Ongoing (Oct. '76 - May '77) Closure late May '77 Quarterly summaries (Nov. 19, Feb. 2, April and June 17)
2.0	Computational Skills Proficiency (CRT)	S. D. District "Survey Test of Basic Skills"	Tele-Math pupils and Comparison pupils	Site personnel (M.C. teacher or classroom teacher) and Mills	Late May (May 24)
3.0	Computational Skills Proficiency (NRT)	CTBS, Form S Level 1 - Grade 4 Level 2 - Grade 5 Comp. Subtest only	Tele-Math pupils (See Obj. 4.0)	Site personnel (M.C. teacher or classroom teacher) and evaluator (Behnke)	Early May (May 2-6) - will coincide with Title I testing dates
4.0	Computational Skills Proficiency (NRT)	CTBS, Form S Level 1 - Grade 4 Level 2 - Grade 5 Comp. Subtest only	Tele-Math pupils and Comparison pupils	Site personnel and Behnke	Mid Oct. - pretest Early May - posttest (See Objective 3.0)

OBJECTIVE NUMBER	OPERATION OR TYPE OF DATA	INSTRUMENTS AND/OR SOURCES	WHO IS INVOLVED?	WHO GATHERS DATA?	CRITICAL DATES
5.0	Teacher functional proficiency with Tele-Math equipment	Tele-Math equipment operation checklist	Math Center teachers at each site who are responsible for Tele-Math equipment	Mills & Behnke	Late September (At the end of the training workshop)
6.0	Knowledge of drill activity program formats (teacher and aide)	Post-inservice quiz	Math Center teachers and aides	Mills	At the end of the training sequence (by Feb. 1)

202

## CURRICULUM DEVELOPMENT COMPONENT

OBJECTIVE NUMBER	OPERATION OR TYPE OF DATA	INSTRUMENTS AND/OR SOURCES	WHO IS INVOLVED?	WHO GATHERS DATA?	CRITICAL DATES
7.0	Activities written and programmed for 75% of grades 4 through 6 objectives	Evidence of programs on the Tele-Math system	Curriculum writers, project coordinator and Gremlin representative	Behnke & Mills	Sept. 13, 1976
8.0	Same as Objective 7.0 except 100%	Same	Same	Behnke & Mills	Feb. 1, 1977

NATIONAL COMPONENT

Schools furnish (by classroom)

Randomly divide groups

Divide Tele-Math groups and schedule 1 hour per week

Pretest, provide and maintain ongoing

Supply evaluation

Identify Tele-Math and provide in

Administer post

Supply evaluation

PROJECT TELE-MATH  
1976-77

INSTRUCTIONAL COMPONENT

	ACTIVITY	DATE FOR COMPL. OR FREQUENCY	PERSON RESPONSIBLE	INDICATOR
1.1	Schools furnish lists of eligible students (by classroom)	By Sept. 24	Site administrator or designate	Lists on file with evaluator
1.2	Randomly divide into Tele-Math and control groups	By Oct. 1	Program Evaluator	Tele-Math and control rosters on file with evaluator
1.3 1.4	Divide Tele-Math students into instructional groups and schedule to math center/lab. (1 hour per week)	Ongoing (reviewed quarterly)	Teachers (math center or math lab)	Assignment sheets and schedules. Sample available on site.
1.5 1.6 1.7 1.8	Pretest, provide instruction, posttest and maintain ongoing records (by objective)	Ongoing (reviewed quarterly)	Teachers (MC or ML)	Student profiles maintained on site
1.9	Supply evaluation data to project director	Quarterly	Evaluator	Quarterly summary reports and end-of-year evaluation report on file with evaluator
2.1	Identify Tele-Math and comparison groups and provide instruction	By Oct. 1	(See activities 1.1 through 1.6)	
2.2	Administer posttests (district survey tests)	Mid-May 1977	Teachers (MC or ML)	Tests and scores provided on data collection sheets
2.3	Supply evaluation data	Quarterly	Evaluator	Quarterly summary reports and end-of-year evaluation report on file with evaluator

# TELE-MATH

## INSTRUCTIONAL COMPONENT

ACT #	ACTIVITY	DATE FOR COMPL. OR FREQUENCY	PERSON RESPONSIBLE	INDICATOR
3.1	Identify Tele-Math and comparison groups and provide instruction	By Oct. 1	(See Activities 1.1 through 1.6)	
3.2	Administer the Computational Subtest of the CTBS to students	In early May	Teachers (MC or ML)	Test answer sheets plus computer run of scored data
3.3	Supply evaluation data to project director	Quarterly or in spring (whichever is appropriate)	Evaluator	Quarterly summary report and end-of-year evaluation report file with evaluator
4.1	Identify Tele-Math and comparison groups and provide instruction	By Oct. 1	(See Activities 1.1 through 1.6)	
4.2	Administer the Computational Subtest of the CTBS to Tele-Math <u>and</u> control students (pretest)	In mid-Oct.	Teachers (MC or ML)	Test answer sheets plus computer run of scored data
4.3	(posttest)	In early May		
4.4	Supply evaluation data to project director	Pretest summary in Nov. and final data summary in early June	Evaluator	Statistical summaries provided to project director and site personnel



## STAFF DEVELOPMENT COMPONENT

ACT #	ACTIVITY	DATE FOR COMPL. OR FREQUENCY	PERSON RESPONSIBLE	INDICATOR
5.1	Select site and materials for pre-service workshop	by Sept. 1	Project Coordinator	List of materials ordered and site name on file
5.2	Select dates and time of workshop	by Sept. 1	Project Coordinator	Workshop notice on file
5.3	Secure names of participants and notify them of workshop	By Sept. 1	Project Coordinator	Workshop notice on file + names and phone #'s of participants
5.4	Conduct workshop	Early-mid Sept.	Project Coordinator and Gremlin representative	Workshop schedule + Service Effectiveness Forms
5.5	Evaluate participants	By end of Workshop	Project Coordinator and Program Evaluator	Performance test/checklist
6.1	Select site, date and time of inservice workshops	By mid January	Project Coordinator	Mid-year workshop notice on file
6.2	Notify participants	By mid January	Project Coordinator	Workshop notice on file
6.3	Secure substitutes	By mid January	Project Coordinator/ Site Administrator	Substitute forms on file

# TELE-MATH

## STAFF DEVELOPMENT COMPONENT

ACT #	ACTIVITY	DATE FOR COMPL. OR FREQUENCY	PERSON RESPONSIBLE	INDICATOR
6.4	Conduct inservice	By Feb 1	Project Coordinator	Workshop agenda on f + service effectiveness form
6.5	Evaluate participants	By early Feb.	Project Coordinator	Workshop te

CURRICULUM DEVELOPMENT COMPONENT				
ACT #	ACTIVITY	DATE FOR COMPL. OR FREQUENCY	PERSON RESPONSIBLE	INDICATOR
7.1	Identify and assign curriculum writers for summer workshop	Before end-of school year (6/28/76)	Project Director	Summer assignment records
7.2	Complete writing tasks (See sub-activities in application)	By mid-August	Curriculum writers	Drafts of math activities
7.3 7.4	Confer with Gremlin re: Suitability of activities and format of games	Ongoing during summer	Coordinator and Gremlin representative	Observation of sessions by evaluator
7.5	Program drill games for computer/videographic delivery	Ongoing during summer	Gremlin programmer	Periodic review of games
7.6	Prepare worksheets to accompany games	Ongoing during summer	Curriculum writers	Worksheets on file with coordinator
8.1	Identify and assign curriculum writers for fall semester writing	By Oct. 1	Project Director and Coordinator	Names and assignment records on file
8.2	Complete writing tasks	By Feb. 1	Coordinator and curr. writers	Documentation of activities written
8.3 8.6	(Same as Act. 7.3 - 7.6)	Ongoing to Feb. 1	(See	Act. 7.3 - 7.6)

EVALUATION/RESEARCH COMPONENT				
ACT #	ACTIVITY	DATE FOR COMPL. OR FREQUENCY	PERSON RESPONSIBLE	INDICATOR
9.0	(See Activities for Objectives 1.0 - 8.0)	-	-	-

TELE-MATH

MANAGEMENT COMPONENT				
ACT #	ACTIVITY	DATE FOR COMPL. OR FREQUENCY	PERSON RESPONSIBLE	INDICATOR
10.1	Select sites	By Sept. 13	Project Director	Confirmation via submit of target rosters
10.2	Conduct site planning meetings	By Sept. 13	Project Coordinator	Informal records of planning meetings
10.3	Order and receive curriculum writing supplies	Ongoing as needed	Project Coordinator	P.O.'s on file with coordinator
10.4	Order, accept and install computer/video-graphic equipment for each school	By Sept. 13	Project Director and/or Project Coordinator	Observation of equipment on site by evaluator
10.5	Order computer/videographic programs for each school	By Sept. 13 (initial set)	Project Coordinator and Gremlin representative	Observation of program on site by evaluator
10.6	Hire instructional aides (T.A.s) for each site	By Oct. 1	Project Coordinator and site Administrators	Personnel assignment records on file with project coordinator
10.7	Hire hourly clerical help	By mid Oct. and ongoing as needed	Project Coordinator	Personnel assignment records on file with project coordinator

SAN DIEGO CITY SCHOOLS  
Programs Division

REPORT OF THE SUPERINTENDENT

THE PROJECTED IMPACT OF AB 65 ON DISTRICT PROGRAMS

November 3, 1977

INTRODUCTION

AB 65 was signed by the governor on September 17, 1977. The State Department of Education immediately established eight task forces around the state to provide input into regulations for implementation. Several district staff persons are assigned to these task forces. In addition to being a major finance measure addressing Seranno, AB 65 has many programmatic features about which governing boards and district administrations should be aware. These can be categorized into three major areas: 1) programs for special need populations, 2) programs for school improvement efforts, elementary and secondary, and 3) an assortment of other program provisions. This report is meant to give you the highlights with regard to programs in each of these areas. Financial implications of the bill will not be discussed, as they will be reviewed separately by the financial department.

I. PROGRAMS FOR SPECIAL NEED POPULATIONS

AB 65 continues our present EDY and state bilingual education programs. Beginning in 1978-79 it will consolidate funding for these programs under a new Economic Impact Aid formula based on bilingualism, pupil transiency and poverty. The new Economic Impact Aid program is completely different from the Federal Impact Aid Program with which we are all familiar. While bringing the state bilingual program under the same funding source as the EDY program, the bill maintains the existing requirements of the Chacon-Moscone Bilingual-Bicultural Education Act enacted last year. Allocations to schools within districts will be based on a formula giving equal weight to each of three factors: 1) poverty, 2) limited/non-English speaking students, and 3) low achievement. Present allocations are based only on educational achievement.

Special provisions of AB 65 for special need populations include the following new areas of emphasis. Under the Economic Impact Aid Program, local boards, using state board rules and regulations, will have responsibility for evaluating program effectiveness and terminating entitlements to schools which do not meet their objectives. AB 65 grants authority for the state to allocate EDY monies for non-instructional purposes; for example, vandalism, security and insurance, as long as these funds allocated statewide do not exceed two million dollars. The bill also contains funds and services for physically and mentally handicapped students.

II. IMPROVEMENT OF ELEMENTARY AND SECONDARY EDUCATION

AB 65 includes provisions for the systematic improvement of K-12 education in California with funds to support improvement efforts. Participation is by application of the site advisory council to the local board of education. The state will fund as many applications as funds allow. District boards must establish a master plan for the phase in of schools, with 50% of a district's

schools entering each year having "greatest educational need." In addition, the district master plan must allow for (1) the identification of community based learning resources, (2) a procedure to terminate unsuccessful site programs, and (3) a procedure to assure the program's supplementary nature.

Each school must have a school site council which will decide whether to submit an application. This same council will serve as an advisory body if a plan is submitted and approved. Existing school councils can be used if they comply with specified requirements. School staff, students (in secondary schools), parents, and others in the school site community must be involved in developing the plan.

School site councils will develop three year plans that emphasize one or more of these components each year: individualization, basic skills, other curriculum areas, self-image and interpersonal relations. Plans must also include a variety of other components including the use of community resources, programs for LES/NES and exceptional pupils, staff development and an evaluation and improvement plan. The section on Improvement of Elementary and Secondary Education also outlines specifications related to bilingual education.

Each school receiving categorical funds for LES/NES students must prepare and submit a needs assessment and an application based upon identified needs. On an annual basis, schools providing bilingual education shall report the (a) number of students served, (b) number of teachers holding bilingual credentials or certificates of competency, (c) number of bilingual aides, (d) number of teachers who have waivers, and (e) estimated program expenditures. These requirements are part of the Chacon-Moscone Act of 1976.

### III. PROFICIENCY STANDARDS

All school districts maintaining junior and senior high schools must adopt proficiency standards in basic skills by June 1, 1978 including as a minimum the areas of reading comprehension, writing, and computation skills. AB 65 requires districts with elementary schools to adopt proficiency standards for grade 6 by June 1, 1979. This will require articulation between elementary and secondary schools to plan for proficiency standards. At all levels, these standards require the active involvement of parents reflective of the socioeconomic composition of the district.

Assessment of progress toward these proficiencies must begin in 1978-79 for junior high and senior high school students. One assessment will be given in grades 7-9, and two during the tenth and eleventh grades. Beginning in 1979-80, one assessment must be given at some point in grades 4-6. Once the high school standards are met, students will not have to be assessed again. After January 1980, students must meet the standards of proficiency for high school in order to receive a diploma. This assessment must be in English. For every student who does not meet the established standards at a particular level, a conference will be required between the pupil (except elementary pupils may be excused), principal (or designee), teacher and parent to discuss the assessment and to describe the instructional program that will be provided to assist the pupil to master basic skills.

IV. STAFF DEVELOPMENT PROGRAM

In addition to proficiency requirements, another major provision relates to staff development. School implementation plans must have a staff development component. Classroom teachers must constitute a majority of the group planning programs for instructional personnel and planning for site councils must involve those members. Time must be set aside for these inservice activities on a continuing basis, including time when school personnel are released from their regular duties. This component will be continually evaluated and modified as necessary by the participants.

V. CONCLUDING STATEMENT

In addition to these major implications, many other implications exist. In the months which follow, much analysis, both programmatic and fiscal, will be occurring related to the specific provisions of this law. District personnel working on the statewide task forces mentioned earlier and our own district committees will be of major assistance in interpreting and acting in accordance with the requirements of AB 65.

Although the new legislation specifies many new responsibilities, our district has already taken many initial steps. Programs conducted under Compensatory Education, Early Childhood Education, Bilingual Education and ESEA Title IV-C will serve as models in many areas. School advisory committees in each of these programs will offer important experience and expertise as we implement additional programs.

School advisory committees and key community groups are receiving briefings and communication about this new piece of legislation. Preliminary instructions for making the first application have been received from the State Department of Education. Representatives for the district are meeting today in Los Angeles with State Department of Education personnel on secondary guidelines so we can proceed to meet the November 25 deadline for application. This afternoon, district personnel met with a representative group of community people, staff and students to discuss the legislation and preliminary plans for its implementation. This group is the one primarily responsible for implementing the student progress section of AB 65.

We will be bringing you progress reports in the weeks ahead on implementation and recommendations from district staff and our community advisory committee.